

THE IRON AGE

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Old Foundry Replaced by New

Modern Facilities Exemplified in a Plant
Designed for Comfort and Safety as Well
as Production—Basement-Fired Core Ovens

WHILE the new malleable iron foundry of the Pratt & Letchworth Co., Buffalo, was practically finished last fall, various refinements and improvements have been added, and the company has but recently felt justified in announcing the completion of its plans and the consequent addition to its facilities. The new foundry has a capacity of 2000 tons of malleable castings per month.

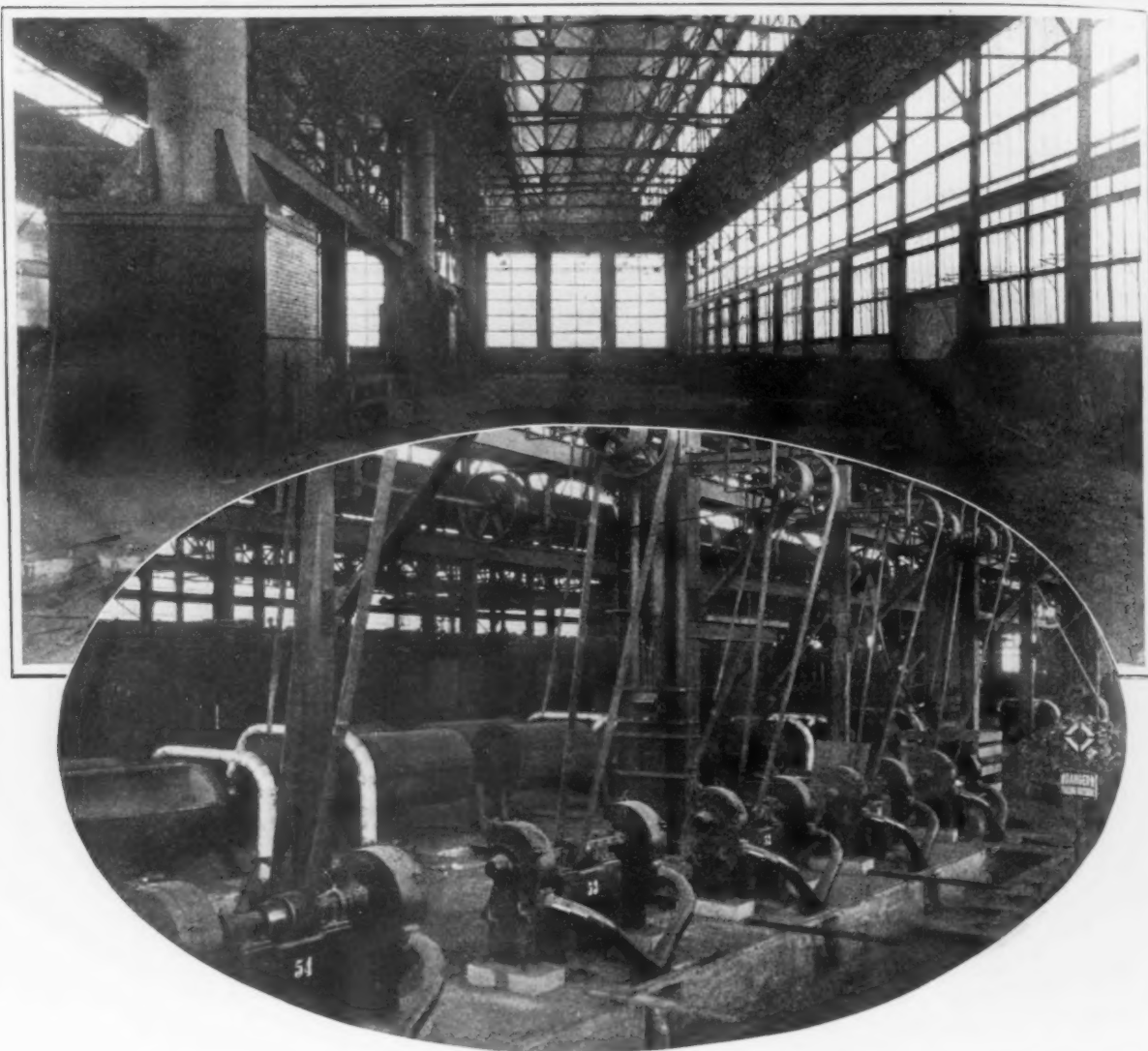
Founded 71 years ago for the production of malleable iron parts used in saddlery, the company is one of the oldest of its kind in this country. The saddlery parts business was disposed of several years ago, and since then the company has made malleable and steel castings, principally for railroad cars and locomotives. It is now producing malleable castings for automobiles, differential and hub castings and the lighter parts for which malleable iron is adaptable, this line of work being a comparatively recent departure.

The new malleable foundry building proper consists of three bays, two of which are 70 x 540 ft. and one 70 x 215 ft., while adjoining these is a fourth building, practically constituting an-

other bay, 60 x 220 ft., in which are located the annealing ovens. The foundry structure is of steel and brick, with large areas of wall space taken up by Lupton steel sash carrying wire glass. Skylights, extending the full length of the various bays, contribute to the abundance of light. The distance from the floor to crane rail is 21 ft. The main floor is of brick, wood block being used in the finishing department. In each bay of the foundry is a 10-ton crane and in the annealing room one of 5-ton capacity, all of Shaw design. The ventilating sash in the monitors is operated by electric motors, the throwing of a switch taking the place of manipulating a chain.

It is difficult to select any part of the foundry or its equipment for special emphasis, but several features may be mentioned to convey an idea of the harmonious arrangement of plant and equipment.

In the foundry are six air furnaces, in which the fuel used is soft coal. They are each of 14 tons capacity, and so situated as to reduce to a minimum the distance which hot metal must be carried. Each furnace can make two heats a day.

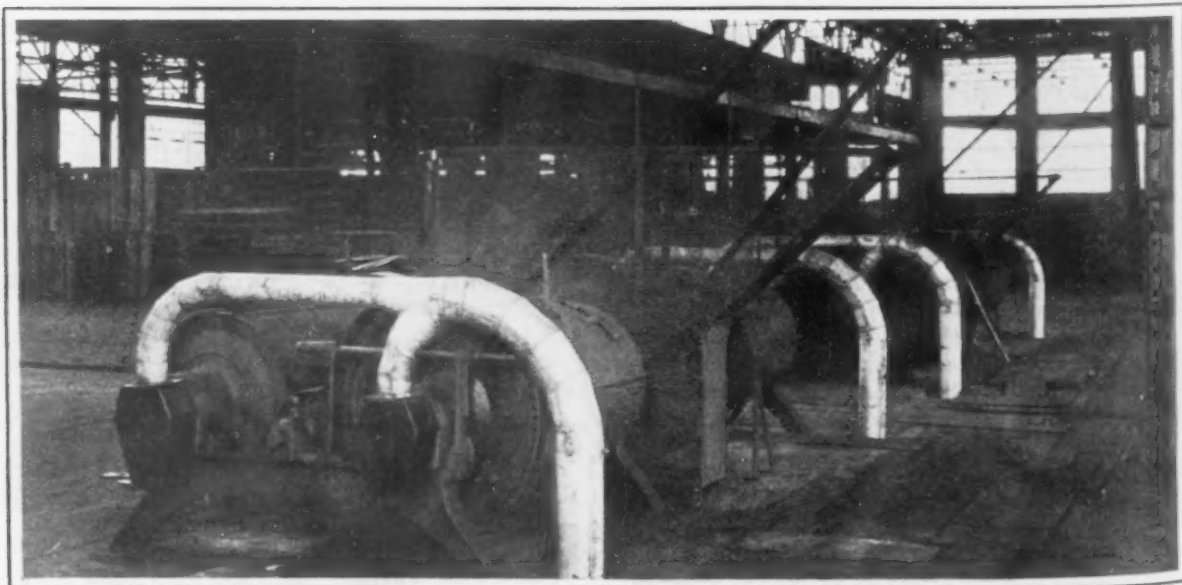


Upper View Shows Bay Used for the Production of Light Castings. Conspicuous are the stacks of three 14-ton furnaces. The high roof and window construction do not need comment.

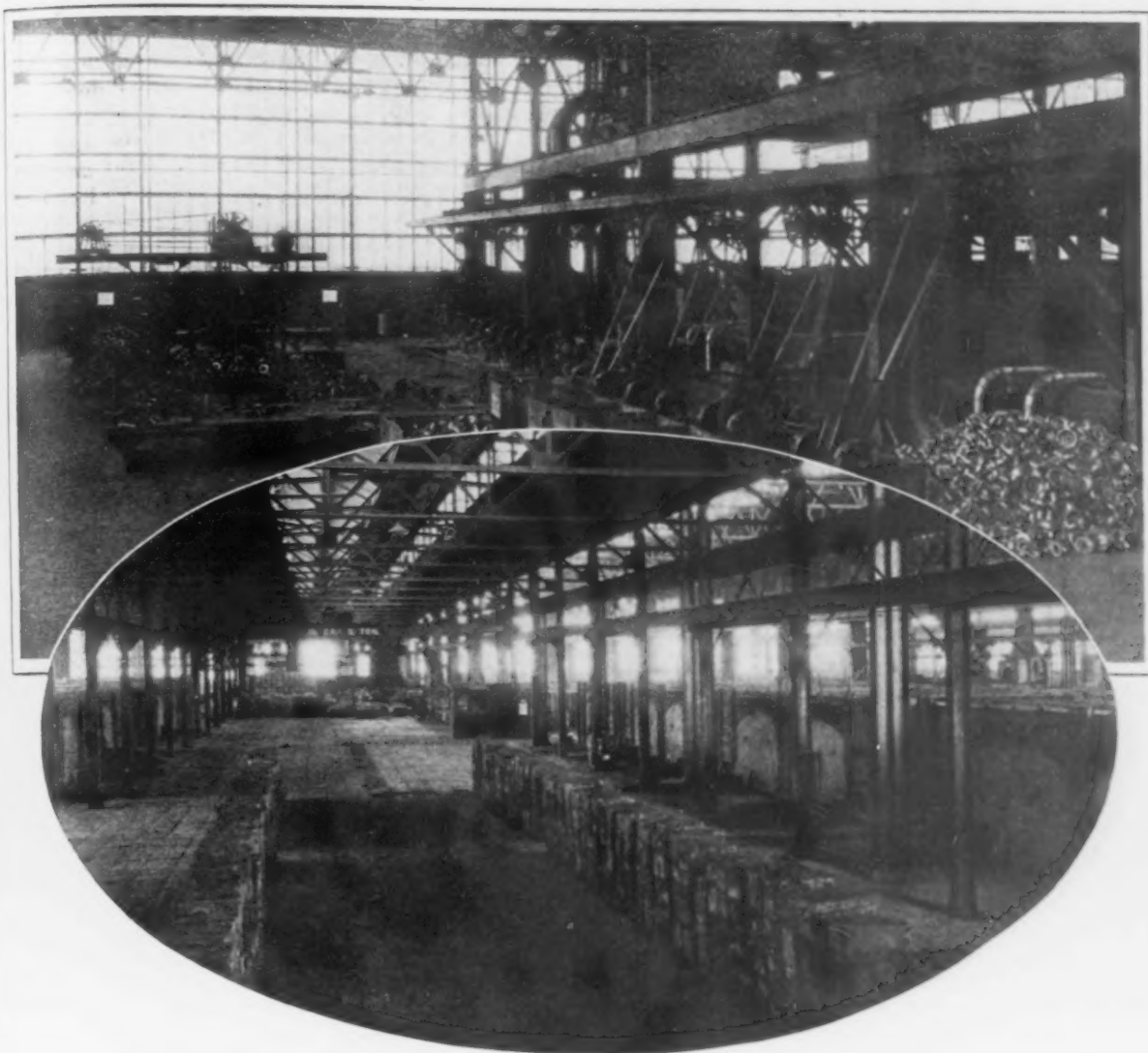
Lower View: A Row of Grinding Wheels, With Guards of Cast Steel. Dust is exhausted into a pipe in the concrete tunnel.

They are of conventional design, with a section of the room removable by crane for charging. The main-bay crane passes over the furnaces into which material is placed by boxes which have been loaded and weighed in the material yard,

and brought by an industrial railway to a point on the foundry floor where they may be picked up by the crane. They are lifted by chains attached to trunnions at each end and are emptied by operating a trip.



Battery of Tumbling Barrels from Which, As in the Case of the Grinding Wheels, Dust Is Exhausted into a Concrete Tunnel. Heavy safety guards around the belts are conspicuous. Throughout this plant the care taken to insure safety and sanitation has won commendation.



In the Right Background of the Upper Picture is the Elevated Hopper Bin into Which Dust from the Barrels and Grinding Wheels Is Exhausted. The cleaning department has a wood block floor

Annealing Department Shown in Lower View Contains Twenty-four Ovens, in Which Boxes Are Placed by a Steam-Operated Truck

In the annealing department are 24 ovens, each having a capacity of approximately 50 tons, the annealing pots or boxes being placed within them by a steam operated truck; the packed boxes having previously been brought to the oven doors

by cranes, a method which not only makes for longer life of the floor, but prevents the castings from being jarred out of contact with the packing. The annealing boxes, it may be mentioned, are not made from any special metal in this foundry.



A Corner of a Coreroom in Which Girls Are Employed, Notable for Its Excellent Light and Ventilation. The doors in the rear of the picture lead to the core ovens, which are fired from the basement. In the oven room are exhaust fans. Female employees enter and leave the core building by stairs and an entrance used exclusively by them

dry, but are poured in open molds from surplus metal.

The castings receive two cleanings. After being shaken from the molds, they are trimmed, fins, etc., being removed, then tumbled, annealed, tumbled again and then subjected to a finishing grinding operation on 2 x 20-in. grinding wheels, a number of which, with the provision for removing dust, are illustrated herewith. The sand-blast tumbling barrels, some of which are also shown, and which were built by the Pangborn Corporation, Hagerstown, Md., are connected to the same exhaust system, the latter having been designed by the W. W. Sly Mfg. Co., Cleveland. The large pipes through which dust is carried to an overhead hopper bin at one end of the building are in concrete conduits, a desirable arrangement in that they are out of the way, offer no interference to light or movement of cranes and yet are readily accessible by lifting floor plates.

Most of the castings are shaken out at night by a gang which comes on at 7 p. m., malleable castings being allowed a longer period for setting than is customary with gray iron. The night men place the castings on wooden platforms in readiness to be carried by crane to the cleaning department, then turn their attention to preparing molding sand for the following day's operation, work in which they are assisted by portable electric cutters made by the Sand Mixing Machine Co.

From every heat two standard $\frac{5}{8}$ -in. test bars, each bearing its heat number, are cast and these are subsequently tested in a 150,000-lb. Riehle testing machine for elongation and ultimate strength. The company takes pride in its electrically equipped laboratory in which both chemical and physical determinations are made, and which is fitted with every appliance for scientific work. A metallographic outfit is in a room convenient to the metallurgist. Continuous tests are made regardless of the requirement of the company's customers. The history of every heat is kept on record, this including data as to materials used, time of heat, annealing temperatures and chemical and physical tests. All raw materials are analyzed and tested on delivery to the plant. Annealing temperatures are read in the laboratory by recording pyrometers. During the progress of a heat the melter of course makes the

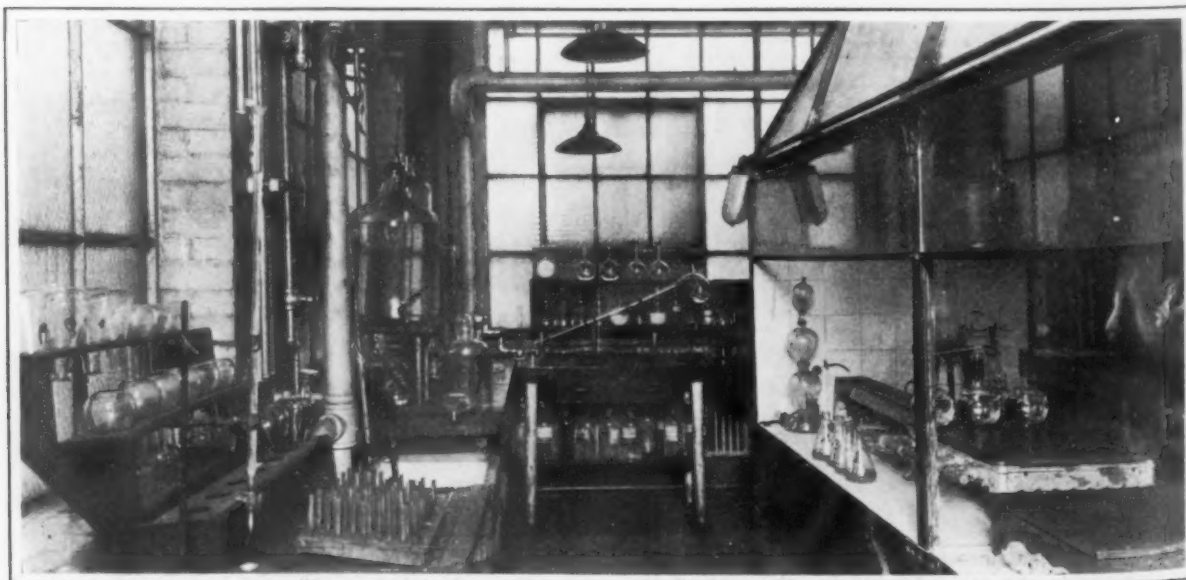
usual fracture test customary in malleable practice.

The handling of refuse, more or less a problem in every foundry, is cared for in a manner that works out well. Near one corner of the building is a space to which all dirt and waste is brought as it accumulates during the day. Near the space, which may be considered a dump, is a large door through which passes a railroad track. Late each afternoon a gondola car is pushed into the building and the dirt and odds and ends which previously have been shoveled into buckets is dumped in the car, the latter then being hauled away.

Though not so new as the malleable foundry, a building devoted to the making of cores for that department and built about five years ago, merits notice, for it not only marked the inauguration of the improvements which culminated in the new foundry, but it contains commendable features. It is a two-story and fireproof structure containing ovens of the drawer type on the first and second floors, all of which are fired in the basement of the building, and done economically, as the coke consumption proves, the arrangement eliminating smoke and fumes on the core-making floors. This is an especially important consideration in the case of the top floor where small cores are made by women. The ovens were supplied by the Foundry Equipment Co. and as seen from one of the accompanying halftones, they are partially separated from the core rooms by a brick wall. The light and good atmosphere in the core room where the women are employed is notable. Motor-driven fans remove heat and smoke from the rooms where the ovens are located. For the women there is a separate stairway to the street so they need not come in contact with male employees. Also provided for them are suitable retiring rooms, shower baths and a kitchen for luncheon purposes.

Core sand is prepared and reworked in the basement and elevated to the upper floors by an electric elevator. Small cores are lowered to the main level on a tray conveyor; the larger cores are made by men on the ground floor.

What is designated a service building contains provision for the comfort and well-being of the male employees. It is two stories and 70 x 144 ft., the facilities mentioned being on the second floor. There are 240 individual white porcelain wash



Corner of the Main Laboratory. The Pratt & Letchworth Co. makes continuous tests whether or not these are specified by its customers. Analysis is made also of all raw materials used



The Cabinet and Bulletin Board Face the Employees as They Enter the Plant. In the cabinet are broken goggles and photographs of employees who wore them when they were damaged, the principle being that a man will be more impressed by a picture of one of his fellow workmen and in the data concerning the manner in which he escaped injury and, in a few cases, how he was hurt.

bowls, each having hot and cold water, 1550 steel lockers and 9 shower baths. In addition there are separate accommodations for the foremen.

On the first floor of this building is the company's machine shops for repair work, each tool having individual drive; the employment office, chief timekeeper's office and employees' entrance, time clocks and racks for time cards. Also in the building is a room for the convenience of inspectors, railroad or governmental, temporarily stationed at the plant.

The welfare provisions of the company include an employment supervisor who does all of the employing and who works in conjunction with a registered nurse on duty in a first-aid room, and a safety director, an employee who oversees the work of various committees. This official, the general manager and the works' superintendent compose a central committee which passes on recommendations and criticisms brought to its notice by committees of the workmen and the foremen. Meetings are held once a week and sometimes oftener, and matters pertaining to safety and general welfare are discussed.

Of interest, and unavoidably seen as the employees enter and pass the time-card racks, is a cabinet containing photographs of employees, some with and some without goggles, while also on exhibit are many pairs of goggles in which the glass has been broken. Below each picture is the name of the employee, what he was doing when his eyes were in danger and usually a statement that he escaped unhurt when, without having worn the goggles shown he probably would have lost the sight of one and possibly two eyes. The exhibit is a constant and convincing argument as to why the men should wear the goggles

which the company supplies to them free, but which many of the men are inclined to ignore. The scheme has been effective in reducing accidents. One photograph shows an employee, name given, and the results which followed his neglect of an infected finger which he might have had treated free of charge in the company's hospital. Also displayed are interesting safety bulletins.

In both the core and service buildings, each of these being detached structures, the stairways are inclosed in brick wells and each floor is provided with fireproof doors, the arrangement obviating the necessity of fire escapes on the outside of the building. Patterns are stored in fire-proof vaults.

The steel casting plant is housed in a building 60 x 600 ft., adjoining an open-hearth building 50 x 300 ft. It contains four 20-ton furnaces. The charging boxes are brought to the furnace doors by mono-rail, and the charging is done by an overhead traction charging machine. The length of the building is evidence of the ample space for pouring. Order and neatness is insisted on in this department as in others, it being required especially that gangways be kept unobstructed. From the casting floor the work passes transversely on an industrial railway to another building of about the same length wherein it goes through the usual operations to prepare it for shipping—cleaning, grinding, chipping, annealing, etc.

Acetylene gas is generated in a steel and concrete building well removed from the main plant building, and also at a safe distance is a similarly constructed building containing four 15,000-gal. tanks for the storage of fuel oil which is used in the open hearths.

Common mistakes are pointed out and helpful suggestions are given to editors of plant periodicals in Circular No. 5, entitled "The Plant Organ," compiled by the Working Conditions Service, United States Department of Labor, and prepared by Prof. Robert E. Park, University of Chicago, former newspaper man, and authority on workmen's psychology, who says that of the 1000 publications of this kind in the United States, three-fourths are intended for stimulating the sales force, the rest to create and maintain industrial morale and thus increase manufacturing efficiency. Copies may be obtained from the Department of Labor, Washington.

E. L. Clark, who was president of the Liberty Steel Co., taken over recently by the Trumbull Steel Co., Warren, Ohio, states that it is his intention to get into the sheet business again, and that he and his associates will probably erect a new mill at Newton Falls, Ohio, to manufacture automobile sheets. Steps are now being taken to incorporate the new company, after which full details of the size of its plant, number of mills to be erected and other information will be given.

The blast furnace of the Struthers Furnace Co., Struthers, Ohio, was blown out last week for relining and repairs.

STEEL MILL AUXILIARIES

Hydraulic and Electric Drives Compared—Cost Figures and Mechanical Operation Considered

Hydraulic vs. electric drive for steel mill auxiliaries was the subject of a paper presented by R. B. Gerhardt, superintendent of electrical department, Sparrows Point, Md., plant of the Bethlehem Steel Co., at a recent meeting of the Association of Iron and Steel Electrical Engineers at Pittsburgh. The author points out that since the electric motor has been applied to some considerable extent to steel mill auxiliaries there has arisen in the minds of a great many of the steel mill engineers, including some electrical men, the question as to whether or not this electrification is justified and has been a complete success. It was the author's purpose in this paper to make comparisons between the two types of drives on these particular auxiliaries.

Location of Plant a Factor

Mr. Gerhardt states that a positive selection between hydraulic and electric drive for a certain unit is not advocated here as the particular conditions affecting the installation under consideration all have to be carefully taken into account. Climatic conditions as to atmospheric temperature variations affect such selection to a very considerable extent. For instance, it is very desirable to eliminate all hydraulic power possible where mills are located in very cold climates or where it is not possible to protect a piece of apparatus from severe cold weather. Where an hydraulic system is already installed and hydraulic power is available, it is often more preferable, when considering an additional piece of apparatus which is considerably simplified by driving from a piston and cylinder, to hold to the hydraulic drive. Often good judgment dictates that an electric driven hydraulic plant for taking care of auxiliaries which are considerably simplified with hydraulic rather than with electric drive, is the best installation; as in the case of large bloom or slab shears which would require a flywheel motor generator set and special driving motor if electric drive were used.

From the control standpoint the electric drive most always has an advantage over the hydraulic drive, for the electric controller is usually a more convenient piece of apparatus for an operator to handle than an hydraulic valve, and for adaptability to location it has a decided advantage over the valve.

The distance of the piece of apparatus under consideration from the hydraulic supply mains is quite a factor in making a selection between the two types of drive, as it is very costly to transmit hydraulic power any distance due to expensive piping, loss of power due to friction, and liability to leaks. On the other hand, such distance is no item whatever with electric transmission. The expense of operating an hydraulic system is very high if constant vigilance is not maintained to avoid leaks and to keep dirt and grit out of the water in the system.

Mechanical Characteristics

The main difference between the two kinds of power is that one more readily is transferred into a reciprocating motion and the other into a rotary motion. To convert either of these forms of motion into the other form requires certain mechanical devices which are always quite an item of expense and which introduce factors affecting speed of operation and efficiency. Considering two drives, one hydraulic and the other electric, for operating a certain piece of apparatus having a straight line motion, if the hydraulic engine and the electric motor were built under the same specifications as to capacity and ultimate speed of the apparatus they drive, without the specifications having outlined a complete duty cycle, the probable result would be that the speed of acceleration of the two equipments would be somewhat different for the reason that with the electric motor drive the torque developed in the motor has considerable work to do in overcoming the inertia of the motor armature and other rotating members in the

drive, while the force acting on the piston of an hydraulic drive usually has fewer parts to accelerate and considerable less inertia to overcome. The control of each equipment is a factor in the time of acceleration, since with the electric motor the torque is proportional to the current and the controller regulates the current to the motor; while with the hydraulic equipment the control valve admitting the water regulates the quantity of flow to the cylinder which affects the force acting on the piston. It should be pointed out in the one case the feature limiting the torque which can be developed by the motor is the mechanical and electrical limits of the machine itself, while in the other case the pressure on the hydraulic system limits the force available for doing work.

With regard to efficiency, the electric drive has an advantage over the hydraulic drive in that to perform a certain cycle of operation only sufficient electrical energy is taken from the source of supply to do this work, making due allowance for friction losses, etc.; while the hydraulic piston usually has to complete its stroke to go through the cycle, requiring the cylinder to be filled irrespective of the amount of work to be done. Pressure engines are very efficient at full load, but their efficiency decreases as the load decreases. With the electric motor the efficiency varies but slightly between wide limits of load.

Conclusions from Cost Figures

The author then explains the hydraulic and electric equipment necessary for furnace door hoists, furnace covers, elevators, blooming mill manipulators, lifting tables and middle roll balance, and shears. Comparative cost figures which include items of initial cost, power per year, maintenance and repair (labor), cost per year (material), and depreciation and interest are given. The author states that the figures do not hold good in general, as they are all war prices and cover a particular installation in a certain location and are therefore only given for the purpose of making a comparison. From these figures the author draws the following conclusions:

In the case of the furnace door hoists, the expense of operation is about the same with hydraulic or electric drive. The initial cost of the electric drive is almost three times that of the hydraulic drive.

With the furnace cover drives, the advantage as to expense of operation and initial cost lies with the hydraulic drive. It should be remembered, however, that ease of control has a decided advantage in the case of the electric drive, and the hydraulic furnace covers for a large mill might require more operators than electric covers, in which event the expense of one additional operator would more than offset saving indicated with the hydraulic drive.

The electric driven elevator has an advantage over a hydraulic elevator in both operating expense and initial cost.

For driving the side guard manipulator the electric motor has an advantage over the hydraulic cylinder in operating expense and the initial cost of either drive is about the same.

The electric drive for lifting table and middle roll balance on a three-high plate mill costs considerably more than hydraulic drive, but has a decided advantage over the hydraulic in operating expense.

There is comparatively no difference in the cost of operation between an electric driven and an hydraulic bloom shear, but the initial cost of the electric drive is considerably higher than that of the hydraulic drive.

There is probably very little difference between the reliability of the hydraulic drive and that of the electric drive in each of the above mentioned applications.

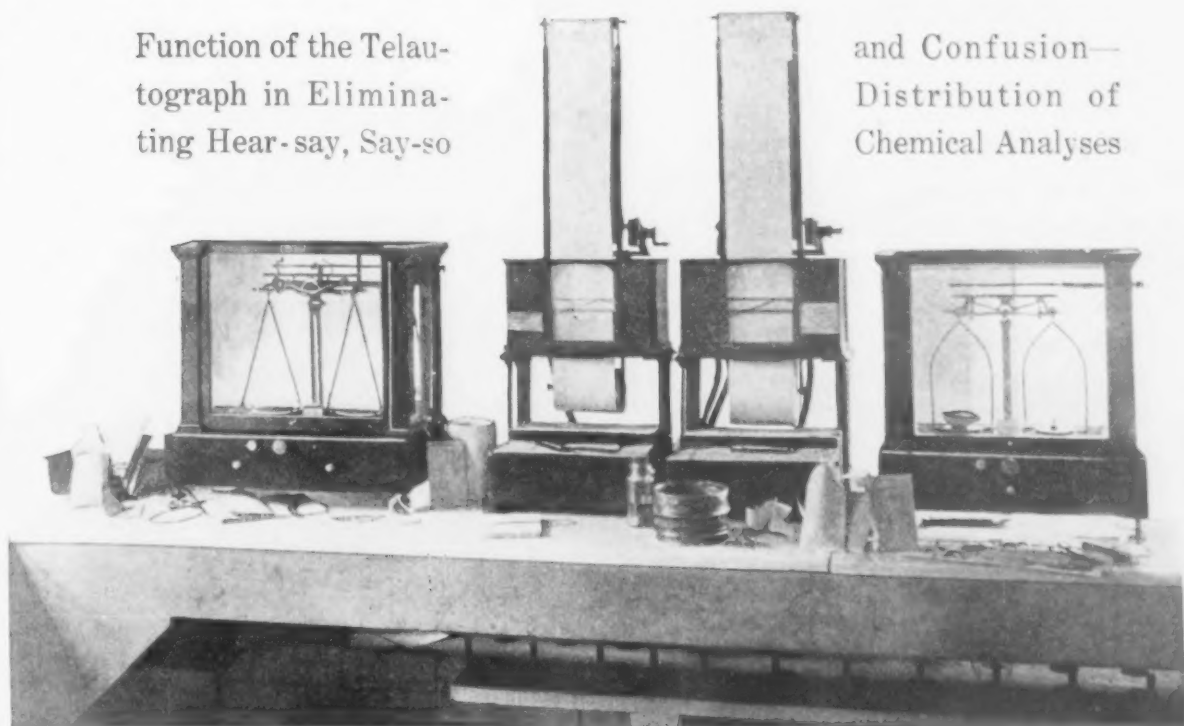
It should be pointed out that the hydraulic field covering large power presses and forges has not, up until the present time, ever been invaded by the electric motor, but this does not necessarily mean that the electric drive cannot be adapted to do this work. More than likely it is the prohibitive cost which has kept the electric motor out of consideration. The motor-driven intensifier is the entering wedge for the electric drive in this field.

The writer wishes to express his appreciation and thanks for the kind assistance of A. T. Keller in preparing this paper.

The Close Control of Steel Processes

Function of the Telautograph in Eliminating Hear-say, Say-so

and Confusion—
Distribution of
Chemical Analyses



ON account of the noise existing in a steel plant it is impossible to use the telephone for communication of important messages, particularly those containing figures. Mills have therefore had to resort to the messenger boy for carrying and distributing messages and analyses, and the uncertain quantity of a messenger boy is well known to everyone. The use of the telautograph has been specialized by the Telautograph Corporation, 438 West Thirty-seventh Street, New York, so that it does away with this unsatisfactory and dilatory messenger service and in doing so actually reduces the cost as well as increases the speed of distribution.

Whatever the saving in dollars by eliminating the messengers' salaries, after all is far less than the indirect saving accomplished through the quicker delivery of analyses to the points where the progress of the work is dependent upon them. This is particularly and strikingly true at the open-hearth furnace. Before the telautographs were installed, in one plant, 1 hour elapsed between the time a sample was taken of the heat of steel from the open-hearth bath and the time the messenger came back from the laboratory with the analysis. All this time the steel was oxidizing and changing its constituency and the work of the plant was halted. With the use of telautographs this period of waiting has been reduced to about one-half hour, and therefore the melter at the open hearth is able to perform his duties more skilfully and more effectively.

In the blast furnace department the chief gain also is not in money saved through the employment of less labor, but through increased efficiency obtained by getting laboratory reports quicker and thereby enabling the mixers and furnaces to handle their work with precision.

In the blooming mill it is impossible to say just how many dollars and cents are saved by the telautograph through the elimination of mixing of heats which results in the shipment of wrong qualities of steel to the various customers. It is not possible to estimate how many mistakes would

be made and how costly they would be if the telautographs were not used to keep things straight. Very often ingots have been rolled into billets, cut into required lengths and loaded on flat cars for shipment when it was discovered that the steel had probably been mixed, making it necessary for a chemist to enter the car and drill a sample of every billet for analysis. Also frequently errors in mixing are not discovered until shipments have been received by a customer and the plant officials were not aware of the fact until they received the complaint.

The telautograph is not limited to the sending of words only, but it can transmit numerals, signs, symbols, sketches or anything else that is written at the transmitting end and accurately reproduce them at the receiving station or stations. Furthermore, it can send messages to a single point or simultaneously to any number.

Practically all orders for iron and steel contain specifications describing just the quantities of carbon, silicon, sulphur, phosphorus and manganese that the material to be delivered on the orders should contain. Each order is given a heat number to identify it throughout the plant, and copies of the order with specifications and heat number are sent to the laboratories, blast furnaces, open hearth and Bessemer mixers, soaking pits of the blooming mill, chief recorder of the blooming mill, hydraulic shears, billet and bar mill, breaking-down mills and bloom yard office or other place where lies the control of final assignment to orders of heats or blows of steel.

The manufacture of all steel, of course, starts with the blast furnaces and the mixers. A sample of each heat from the blast furnace blowers is sent to the blast furnace laboratory for analysis as to its carbon, sulphur, silicon and phosphorus contents. The blast furnace laboratory, after obtaining the analysis, writes the results simultaneously to telautograph stations at the blast furnace blowers and the open-hearth mixers. This is of benefit to the blast furnace because it enables the blowers to know just what kind of

iron they are making and whether they are approaching the specifications, and by obtaining this information in advance the open hearth and Bessemer mixer is able to prepare for handling the ladles when they arrive. The mixer also has occasion to notify the blast furnace by telautograph when the ladles arrive with their surface solidified, so that on future deliveries the blast furnace can put more coke dust on the surface to prevent recurrence of the trouble. Very often the ladles in the journey between the two points are delayed and the blast furnace telautographs notice of these delays to the mixer so that other provisions can be made.

Distribution of Chemical Analyses

After the open hearth and Bessemer mixers have gotten the heat to the approximate proper proportions and have run the steel out into the ingot molds, a sample of it is taken and sent by messenger to the main chemical laboratory. Here the steel is analyzed and a report of the analysis giving carbon, phosphorus, manganese and sulphur contents is transmitted by telautograph simultaneously to the bloom yard office, billet mill, shears, breaking-down mills, and chief recorder of the blooming mill. The analyses are reported in the following form:

Open-Hearth Steel

Heat No. 13810, C—.09 P—.016 M—.41 S—.045

Bessemer Steel

Blow No. 74900, C—.09 M—.43 S—.153

The clerk in the bloom yard office, where copies of all orders are kept and where exists final authority as to allotment of heats to orders, immediately compares the analysis with the specifications on his copy of the order for this heat number, and if the analysis tallies with the specifications he checks it off and takes no further action. If, however, the clerk finds that the analysis does not agree with the order, he looks to see if the steel can be applied on some other order and if successful he assigns the heat of steel to that order. If, however, he is unable to find any order on hand that this steel will suit, it is ordered rolled and put in stock.

In the meantime the ingots from the heat have been transferred to the soaking pits of the bloom mill where they obtain their proper degrees of solidification. At the office of the chief recorder of the bloom mill the same process is gone through in checking the analysis with the specifications of the heat number for which the steel was made. If correct he knows that he can proceed to roll the steel when ready. If he finds a discrepancy between the analysis and the specifications he immediately goes to the bloom yard office to find out what other application is to be made of this particular heat. In either event he is then sure just what disposition to make of the ingots when they are drawn from soaking pits.

Tally of Ingots Through Blooming Mill

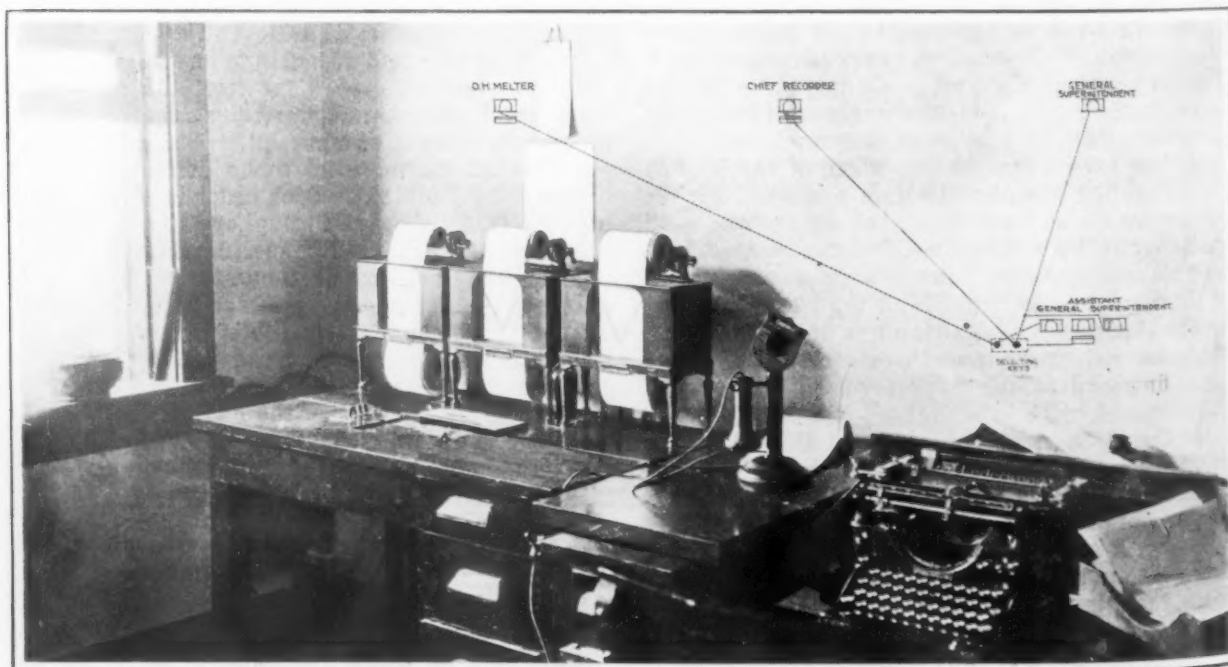
A boy in a pulpit about 12 ft. above the soaking pit floor has a plain view of all the pits and the first set of rollers through which the ingots pass. He has before him on a blackboard the heat number and number of ingots in each pit, so that as soon as a pit door is opened he can tell what heat of steel is being drawn out and how many ingots are to be accounted for. The ingots are drawn out one at a time and put on chariots which carry them to the first set of rolls where the ingots undergo their first reduction in size, and as the first ingot reaches there, the pulpit boy writes on his telautograph to the chief recorder:

No. 1—O. H. No. 6824—(6) 24
at 40" Mill now O. K.

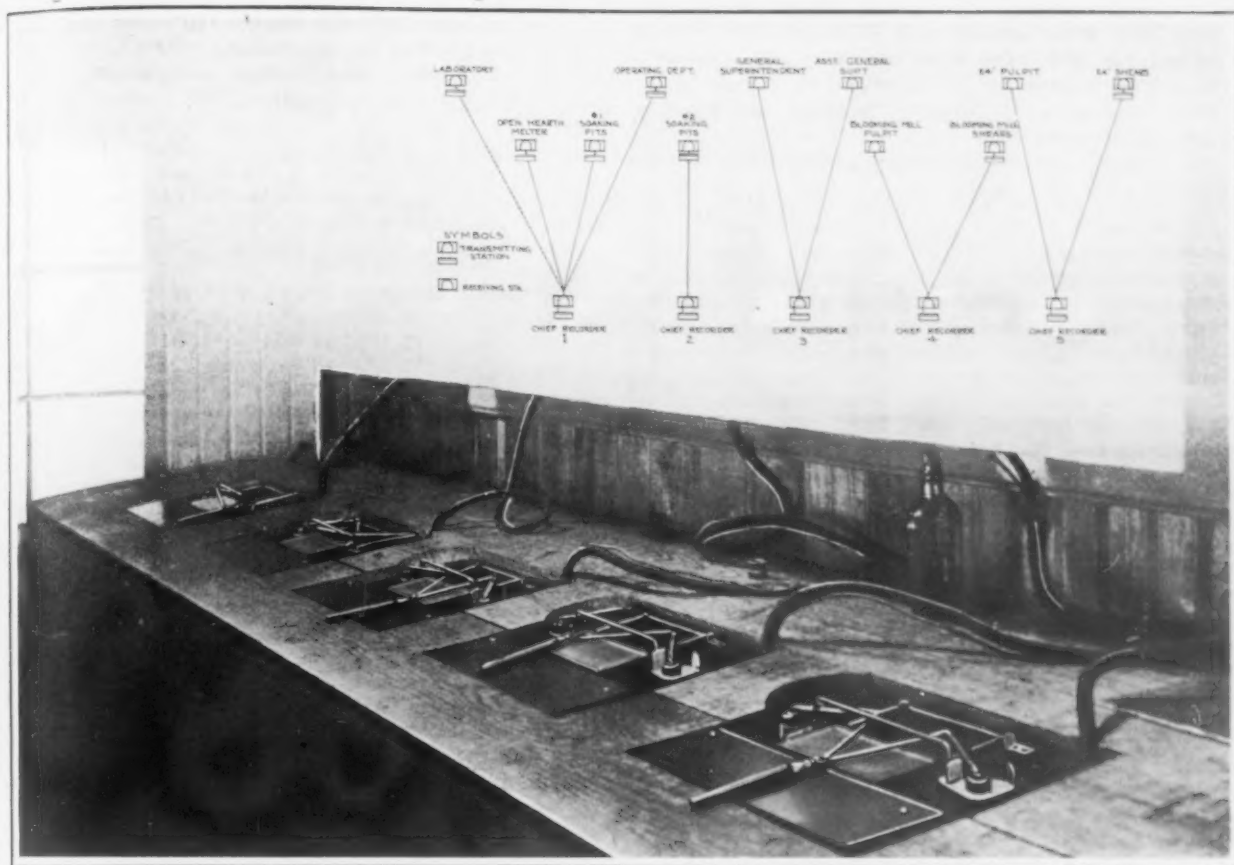
This means that ingot No. 1 of open hearth, heat No. 6824, containing six ingots in all and drawn from pit No. 24, is now being rolled at the 40-in. mill. To which the recorder replies: O-K, showing he has received the message. As the second, third and other ingots pass through the mill the boy writes, leaving out useless repetition:

2	.	.	.	.	24
3	.	.	.	.	24
4	.	.	.	.	24
5	.	.	.	.	24
6	.	.	.	.	24

showing that all ingots of heat 6284 have been rolled.



Instructions Are Transmitted from This Point in the Assistant General Superintendent's Office of the Central Steel Co., Massillon, Ohio, to the Open-Hearth Melter, the Chief Recorder, and the General Superintendent; and Messages Are Received from the Open-Hearth Melter Regarding Heats Tapped and from Chief Recorder Concerning Heats Rolled, and Temporary Shutdowns



Data Covering the Plant Activities of the Central Steel Co. Are Collected at This Office of the Chief Recorder, as Shown in the Diagram

The chief blooming mill recorder, usually located where he has an unobstructed view of the mill and the rollers, can watch the progress of the ingots as they pass from one set of rolls to another; and by having this information designating the heat numbers and the numbers of the ingots being rolled at the set of mills furthest off, he can follow the ingots up and see that they are properly recorded and accounted for at the other mills through which they pass, thereby preventing the mixing of heats by losing the identity of the ingots. This is extremely important, because, as explained before, each heat of steel is mixed particularly for and assigned to a certain order only after the chemical analysis shows that the specifications are properly complied with.

By knowledge obtained from his copy of the original order the chief recorder knows what finished form each heat of steel is to be made up in, and after it has been rolled in the 28-in. mill into blooms he orders the blooms sent, according to conditions in each case, either to the billet mill to be rolled into finished billets or to the hydraulic shears to be cut into blooms of certain lengths and forwarded from there to any one of the finishing mills in the plant which rolls the steel into slabs, strip, rod or other form of material.

If the blooms are to go to the billet mill the chief recorder's clerk telautographs to the billet mill's shanty the heat or blow number, the size of the billets to be rolled and the proper stamp mark to be used. The billet mill clerk must "O-K" the message by telautograph before further work on the blooms proceeds. The same information is sent to the hydraulic shears when the blooms of the heat are to be cut out.

In addition to this service the telautographs are employed at the billet mill and at the shears to notify the chief recorder when any breakdown

occurs and how long it will take to repair the damage. This permits the chief recorder to plan a redistribution of the work so that no more blooms proceed. The same information is sent to the hydraulic shears when the blooms of the heat are to be cut out.

In addition to this service the telautographs are employed at the billet mill and at the shears to notify the chief recorder when any breakdown occurs and how long it will take to repair the damage. This permits the chief recorder to plan a redistribution of the work so that no more blooms will be sent to the disabled mill until sufficient time has elapsed for the mill to complete repairs.

Other Telautograph Services in Steel Plants

According to the geographical layout of the mills the need of various special telautograph services develop in different mills. In some they make good use of a telautograph line between the tube mill and the tube mill shipping office for the shipping office to report the names, numbers and weights of freight cars they have loaded together with the net weight of material in the cars. In other plants a telautograph line may be useful between blooming mill and general office for reporting hourly on the progress of the work going through the blooming mill and for answering inquiries made by the general office. Another steel plant uses a line between the blooming mill office and the track scales for reporting net weights of steel loaded on cars.

The Federal Trade Commission has filed at Washington its first formal complaint in the Government campaign against what it charges to be unfair practices in the sale of securities. The defendants in this action are the Pan Motor Co. of St. Cloud, Minn., and its president, Samuel C. Pandolfo.

British Experience with Electric Steel

Competition with Acid Open-Hearth—Royalty Problem—Electric Pig Iron—British and Canadian Power Costs—General Problems

A FEATURE of the annual spring meeting of the Iron and Steel Institute in London, May 8 and 9, was a joint session with the Institution of Electrical Engineers. Important papers on electric furnaces were presented which were later fully discussed. These brought out many interesting practical facts and theoretical questions based on British electric furnace experience. Some extracts from this discussion follow:

F. W. Harbord said that, as a scrap-melter, the electric furnace had come to stay, and as a refiner it no doubt had a future. The real defect of the electric furnace was the electrodes which filled up the hearth, weakened the roof, involved considerable expense, made it difficult to charge, and interfered with the working, particularly when the electrode failed. What was really wanted was for the electrician to design a furnace which would be as nearly as possible like the ordinary open-hearth furnace. With reference to the direct reduction of ore in the electric furnace, although that might be an economic proposition in Sweden, where cheap energy was available from water-power resources, where charcoal was used as fuel, and the product fetched £3 to £4 per ton more than ordinary commercial pig iron, the case was different in this country. As the maximum output from electric smelting-furnaces appeared to be about 150 tons per week, they could never compete with a modern blast-furnace producing from 2000 to 3000 tons per week.

Bessemer, Basic and Electric

Dr. Stead, on the suggested association of the Bessemer process and the electric furnace, said that with metal at such an enormously high value as at the present time, and at which it was likely to be maintained, the Bessemer process was permanently doomed. If Mr. Cooper, of Middlesbrough, had been present he could have told the members that his firm was entirely abandoning their Bessemer plant and replacing it with open-hearth plant. But the advantage of the electric furnace was not confined to its possible association with the Bessemer converter. It was well known that in the ordinary process of making basic open-hearth steel there was a certain amount of sulphur and phosphorus left in the steel, and by transferring it into the electric furnace and oxidizing it the last portion of phosphorus could be eliminated, and then by removing finally the last traces of sulphur one could obtain material which in its chemical properties was actually superior to any material made. That was the direction in which they in Middlesbrough at any rate, and in other places where basic steel was being made, expected to move in the future.

Progress in Ferroalloys

H. Campbell dealt with the progress made in the manufacture of ferroalloys. In the year 1914 we were in a desperate position for tungsten and ferrochrome, but in 1918 one firm was turning out the whole requirements of the country for ferrochrome, and making ferro-tungsten. The expansion of the electric-furnace industry since 1914 was, from the point of view of the output, about 40. The electric furnace was a substitute for the crucible process, and as a direct method of manufacturing tool steel it had great possibilities. The great difficulty was to get skilled melters. In trying to frame an estimate of the future, it had to be borne in mind that the economic position as regards the production of many alloys must be profoundly affected by the coming of peace, and he did not believe that it would be possible under competitive conditions for the manufacture of ferrosilicon to be continued in Great Britain. The conditions governing power supply in England were not favorable to consumers, and he suggested a system of charges for current based on a

fixed price per unit, plus or minus a discount for good or bad load factor, with a coal clause.

British and Canadian Power Costs

Sir Robert Hadfield said the chief point with regard to the application of electric energy to steel melting or producing alloy steel of a special type was the cost of power. He was delighted to know that there had been a very important commission sitting for some time past with a view to bringing about the establishment of large power centers, from which it was hoped to get a far cheaper rate. It was quite evident that this country was going to be at a great disadvantage unless that was done. In other words, if it was going to cost something like £2 5 s. to £3 per ton for the energy employed in melting steel, and our Canadian cousins could get exactly the same energy for 10s. or 12s. per ton, this country would be at a very serious disadvantage.

David Carnegie referred to experience in Canada. At one period there was a huge surplus of turnings, which had to be sent to the States, while Canada was buying steel from that source for the manufacture of munitions. That condition of affairs led to the decision to instal the electric furnace. They put down the Héroult furnace of the 6-ton type, installing a row of 10 side by side, all well above the factor of safety previously accepted, the intention being to obtain if possible from the 10 6-ton furnaces a capacity of 300 tons a day of liquid steel. They had succeeded in raising the capacity to 400 tons, and their experience indicated the advantages of adopting a high factor of safety in design.

A. Hutchinson, referring to the use of the electric furnace to produce a finer quality of steel in the open-hearth process, said that in modern blast furnaces and steel plants connected up with coke ovens there existed the possibility of generating current so cheaply from gas engines fed by the waste gases from blast furnaces and coke ovens, that the electric furnace would become a possibility where it was not a possibility at present owing to the power companies charging such a high price for their current.

Electric versus Acid Open-Hearth Steel

E. H. Saniter, Metallurgist Steel, Peech & Tozer, Sheffield, was strongly of opinion that for ordinary competitive work in what might be called structural steels, and even finer steels than that, the electric furnace had not a ghost of a chance. He was also of opinion that for many of the finer steels the acid open-hearth furnace could do equally well, and a good deal more cheaply. That was taking, of course, present conditions. If electric current could be obtained at a very much cheaper rate, and if electrodes could be got which would not be continually falling into the bath, the electric furnace might do much better. As far as he had been able to test electric steel against similar steel made in the acid open-hearth furnace, he had not been able to find that it was in any way superior. He hoped that with further experience and with improvement in furnaces that difficulty might be overcome. He certainly thought that for certain classes of what might be called tool steels there was a considerable future for the electric furnace, but again the size of the electric furnace was an important factor.

E. Adamson believed that the electric furnace had an obvious field for the production of certain classes of steel, but agreed with Mr. Saniter that for structural steels and those slightly higher in quality the electric furnace had no future in Great Britain. When the material used was such as burnt steel scrap, then even the electric furnace would never make such good steel as that derived from pig iron and good-class scrap.

H. H. Ashdown remarked that from what the previous speakers had said the impression might be formed

that the best steel could be obtained under any conditions from the electric furnace. That was not the case. The utmost care and attention had to be given to the steel in the electric furnace if the best results were to be obtained. He had had experience with a 5-ton lot of electric steel produced by one of the most experienced makers in England which, when tested transversely, it had serious defects. He believed that there had been the same experience in America.

W. M. Mordey thought the whole case for the electric furnace turned on the price of electric energy. It was not long since furnace-makers admitted that the consumption was as high as 1000 units per ton, but reference had been made to the figure of 500 to 570 units. Reduction in the quantity of energy used was equivalent to a lower price for current. Attention should be devoted therefore to reducing expenditure in other directions, such, for example, as the cost of electrodes.

Mr. Brown said that when it was suggested that better steel could be produced by the acid process than could be produced in the electric furnace, the question immediately arose as to how long it would be possible for the acid process to be carried on profitably in this country. During the war it had been necessary to adapt the basic process more and more. With regard to the cost of power it was quite evident that it would only be possible as a war measure to pay 0.72d. per unit, as Sir Robert Hadfield had done. At that price the production of steel by electrical methods was not commercial.

The Question of Royalties

H. B. Toy said the question whether electric steel was going to compete commercially with steel made by the open-hearth, either basic or Bessemer, depended upon three factors in the manufacture of electric steels: The price of the current; the price of the electrodes, and the price charged by the so-called designers of the furnace for royalties. He thought that during the period of the war the designers were not justly entitled to the amount of money they demanded for royalties. For example, one designer had a furnace with two vertical electrodes through the roof; then another designer came along, and to avoid that he put two electrodes through the roof and one through the side, and another designer put three electrodes horizontally; and each and all of them, either in the purchase price or the rent, charged a royalty for the use of the furnace.

Sir Robert Hadfield said that when Mr. Mordey referred to only 600 units of heat being employed, it should be stated that that was really for melting mild steel. In making steel from pig iron much more than 600 units would be required. When he started during the war he had to pay about 0.6d., it then rose to 0.7d. and was now 0.8d., and Sheffield men were writing to the newspapers and saying that steel makers were being handicapped, and that it would soon be 1d. Was the heat obtained by electrical energy of the same quality as the heat obtained by combustion? He was watching a heat of electric steel only a month ago, and came to the conclusion that there was some difference in the effect of the electrical energy upon the molecular construction of the steel, and he should like electrical engineers to throw some light upon that point.

G. W. Partridge, a supplier of electric energy, said one speaker had said he could get current in Norway at 30s. per unit per annum. On a 50 per cent. load factor that worked out at 0.082d. If those present thought they were going to buy current in this country anywhere near that price he was afraid they would be disappointed. When power engineers were able to purchase economical plant there would be no difficulty in supplying current well below ½d., but he thought that a ¼d. for the next two or three years was rather a low figure considering the high cost of plant and labor.

Use of Large Units

D. Sillars said it was no use comparing what was done in this country with what could be done in Sweden or Canada, because as long as we had to produce power from coal we should never be able to do electric smelt-

ing. Very large electric furnaces would not be successful for the simple reason that the heat could not be applied over the whole of the bath; the heat was applied at certain points, and the larger the furnace the greater number of points at which it must be applied; therefore the greater number of breakages in the roof.

A. P. Payne said he saw a furnace in Scotland with which those who were operating it were absolutely satisfied. They said they would not go back to the old process, and that they proposed to give a repeat order for the furnace. Further south, in one furnace which was exactly the same size as the one in Scotland, the cost for the same class of steel was 2½ times as much. In the course of his investigation he had come to the conclusion that there was not twopence to choose between the different types of furnaces, and there was practically no difference to be found between different furnaces of the same type as regards the consumption of electric power. He fancied, therefore, it must largely lie in the question of management. He was a great believer in automatic control for any but very small furnaces. Also one should go in for transformers that could be repaired on site.

Mr. Service said that as several steel-makers had expressed adverse opinions on the quality of electric steel, he should like to give his experience, which had been limited to a small electric furnace of about 35 cwt., working mainly on nickel-chrome steel. A great many of the ingots had been cut up for investigation and the results had proved that the steel was superior to any that he had ever got out of open-hearth acid processes. He came to the conclusion that it might be due to the small size of the furnace and consequently of the ingot, and decided to try the largest electric furnace that could be obtained in the country. The result was confirmed in the larger furnace.

Victor Stobie said Mr. Harbord had called attention to the fact that the only differences between many furnaces was a matter of electric connections. The point could be absolutely dismissed from the mind because there was no difference whatever whether the current was coming in single, two, or three phase, or whether it went through the arc or not. The melting was done almost entirely by the arc, and there was no need to consider whether a furnace was suitable for the purpose merely because of the electric connections. The whole point was the mechanical design of the furnace and its metallurgical possibilities. He had been interested in what Mr. Saniter and other speakers had said as regards the impossibility of electric steel competing with open-hearth at all. He was quite sure that if those gentlemen would go into the costs relating to large electric furnaces they would find there was very little difference at present. He did not know what was going to be the position since the subsidy had been removed from iron, because, so far, electric steel-makers had been able within an odd sovereign or two to equal the price of acid open-hearth steel.

Progress in Electric Pig Iron

J. Bibby said the largest electrode that had been made would take 22,000 amperes instead of the 12,000 mentioned by one speaker. It had been said in the discussion that the reduction furnace had not reached a practical stage, but when he stated that at present 400,000 tons of pig iron were being made every year in electric reduction furnaces the present importance of the industry would be seen, and there were furnaces being put down now that would do another 50,000 tons a year.

George A. Sagendorph, president Penn Metal Co. of Boston, has purchased the controlling interest in the New York Iron Roofing & Corrugating Co., Jersey City, N. J., and the Penn Metal Ceiling & Roofing Co., Philadelphia. While the three companies will for the present operate under original incorporations, the departments of finance, purchase and sales will be unified and directed by the Boston company. The name of the Philadelphia company will be changed to Penn Metal Co., Ltd., and the New Jersey company to Penn Metal Co., Inc. Each of these three companies operates a completely equipped plant.

British Iron and Steel Exports in April

Exports of iron and steel from Great Britain in April, 1919, are officially reported as 173,606 gross tons, excluding iron ore and including scrap. This compares with 109,939 tons in February, 1919, with 159,529 tons in March and with 135,927 tons in April, 1918. The average per month in 1915, 1916, 1917 and 1918 was 220,670 tons, 279,695 tons, 195,400 tons and 134,826 tons respectively. The pig-iron exports were 15,450 tons against 11,564 tons in March, 1919; in April, 1918, they were 32,229 tons. Ferromanganese exports were 9186 tons last April as against 7766 tons in April, 1918.

The outgo of steel bars was 18,762 tons, or about the same as in March, 1919, while that of rails was 7107 tons as against 3359 tons in March, 1919, and only 2440 tons in April, 1918. The April tin-plate exports this year were 25,195 tons, as compared with 22,185 tons in March, this year, and with 20,049 tons in April, 1918. The exports of steel plates not under $\frac{1}{4}$ in. thick were 19,876 tons last April against 26,992 tons in March, this year, and 8400 tons in April, 1918.

Imports of iron and steel in March, excluding iron ore and including scrap, were 14,367 tons, as compared with 34,956 tons in March, this year, and 25,435 tons in April, 1918. The monthly averages in 1915, 1916, 1917 and 1918 were 107,550 tons, 64,404 tons, 43,286 tons and 28,543 tons respectively.

Iron ore imports last April were 406,573 tons, of which 284,778 tons came from Spain. These imports in April, 1918, were 438,098 tons, of which 311,252 tons were credited to Spain. Pig-iron imports last April were 2533 tons as against 12,056 tons in April, 1918. They were 27,363 tons in February, this year, and 14,409 tons in March. Ferroalloy imports were nil in April, as compared with 286 tons in March and with 3295 tons, largely ferrosilicon, in April, 1918.

Manganese ore imports were 36,350 tons in April, this year, as compared with 12,018 tons in April, 1918, and with 27,766 tons in March, this year.

Sheffield Tool Steel and the American Market

Exports of Sheffield high-speed steel to the United States were suspended during the war, and the fact that users in that country have managed to carry on with the home-made article for more than four years has necessarily created a good deal of anxiety in Sheffield with respect to the future of the trade, comments the London *Ironmonger*. The question to be settled is whether the American steelmakers have succeeded in making their country independent of Sheffield. The restrictions upon the exports of steel have not been removed long enough to enable the question to be answered with any degree of definiteness, but it is encouraging to know that already a few fairly substantial American orders have been placed in Sheffield, showing that at any rate some of the engineers in the United States were only awaiting the opportunity of securing the particular brands of steel which they were accustomed to use before the war.

The volume of this business is not yet sufficient to be described as a sign of the revival of the lost trade, but straws indicate the direction of the wind, and it affords proof that the old-time reputation of Sheffield tool steel still counts in the world markets, not excepting those in which the manufacture of similar material has been established for a considerable time. Apparently the possibilities of Sheffield competition developing in the near future are not being overlooked in the United States, as the makers there have lately cut their quotations for high-speed steel somewhat severely, presumably with the object of depriving the imported material of the price advantage which it has offered in the past.

The prohibitions on the importation of tool steel into France and Italy continue, but the feeling in Sheffield is that they are likely to prove merely a temporary check to business. The making of tool steel in those countries is a new industry, and it is extremely unlikely that the firms who have taken it up will be able to satisfy with their limited experience the many varied and complex requirements of modern engineering. Some time must elapse before the large stocks of material

existing in both countries are absorbed, but afterward the users will probably insist on more freedom to import.

Bureau of Mines Is Optimistic

WASHINGTON, June 10.—“The whole industry is in a hopeful state of preparation for the future, when reconstruction begins in earnest and when the industries both here and abroad settle down to a state of steady activity.”

This is the summary of the situation in the iron industry, as reported by F. T. Eddingfield, in the monthly reports for May of “Minerals Investigations” compiled by the Bureau of Mines. The report lists England, France, Italy, Belgium, China, Dutch East Indies, Japan and Chile as in the market for steel products, but especially for railroad equipment. The exportation of steel rails, it declares, for the first four months of the year, was at a higher rate than ever before.

Concerning conditions abroad, the report declares that export trade conditions are improving. Great Britain has removed government import restrictions on large numbers of iron and steel products, as have also France and Italy. The summary continues:

“Great Britain has an advantage in lower freight rates to Europe, but the United States is able to make quicker deliveries, which has enabled her to make sales in England recently and should be a decided factor in continental trade.

“Great Britain withdrew Government regulation on her steel industries and also withdrew subsidies, requiring producers who had benefited by the subsidy and had stocks on hand to refund a fixed rate to the Government. The prices of iron and steel are now fixed by the producers and are generally higher than before, and in some cases the present domestic rate is higher than the former export rate.

“It appears that the iron and steel industry of Great Britain is much more unsettled than in the United States, and not so well organized. Labor conditions are also embarrassing and wages are high.

“Germany, too, is in a bad condition, and is much in need of raw material. Labor conditions are also unfavorable and are forcing producers to increase wages.”

Coal Shortage Expected

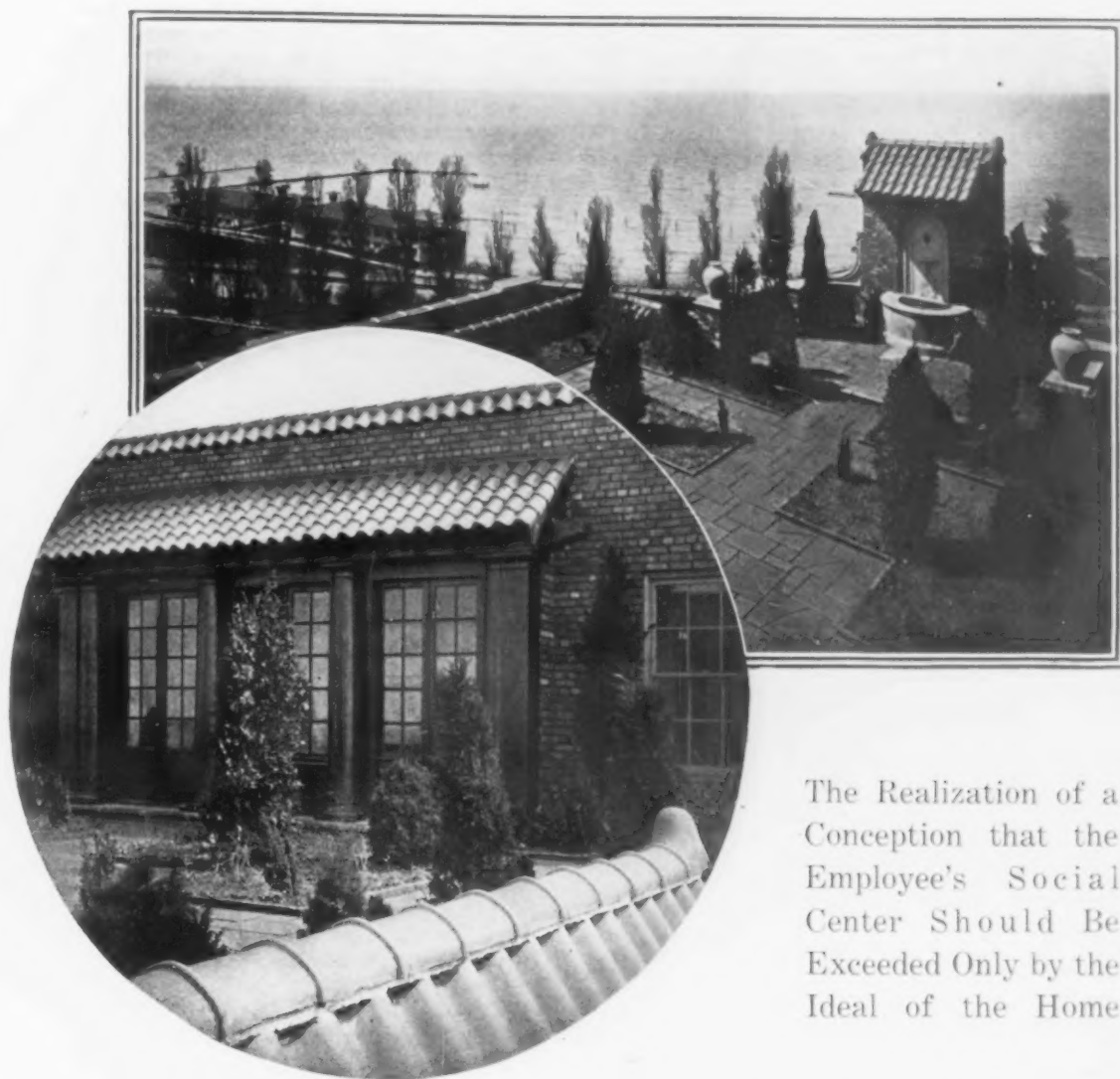
J. D. A. Morrow of Washington, vice-president of the National Coal Association, addressed a meeting of the Pittsburgh Coal Producers' Association in the Oliver Building, Pittsburgh, last week, and told of the establishment of branches of the National Association in Pittsburgh, Chicago and Cincinnati. Daily records are being kept of the output of mines. Mr. Morrow stated that there is every indication of a coal shortage next winter. Up to May 17, there had been falling off in production, as compared with 1918, of about 30 per cent. The principal reason is that industrial consumers have been using coal from their stock piles in the hope that prices would decline. Mr. Morrow said that domestic consumers and others should begin at once to lay in supplies. Europe will need at least 54,000,000 tons of coal this year. The coal to supply this demand already is beginning to move across the ocean.

Tokyo to Spend \$50,000,000 on Harbor

Construction of a harbor for Tokyo, a pending problem for many years, will now be actually undertaken, according to the *Jiji*. The total cost of the work is estimated at \$50,000,000. When Baron Sakatani was mayor of Tokyo, the cost had been estimated at only \$15,000,000. The city, it is said, will ask for a Government subsidy of one-third this amount, and another third of the sum is to be secured on the pledge of reclaimed ground, while the remainder is to be repaid out of receipts collected from ships entering the harbor. Bonds may be issued to raise the necessary amount.

The port of Nagasaki is being improved at a cost of \$1,000,000.

Luxurious Factory Club and Roof Garden



The Realization of a Conception that the Employee's Social Center Should Be Exceeded Only by the Ideal of the Home

THE formal opening on May 17 of the new factory of the Globe Machine & Stamping Co., near the lake front at 1250 West Seventy-sixth Street, Cleveland, was the occasion for a house-warming at the splendid quarters provided for the employees' organization, the Globe Social Club, comprising an entire floor devoted to clubrooms and a roof garden of unusual design.

The origin of the club is due to the desire of A. F. Schroeder, general manager, to make the plant a place in which to live and labor, a place surpassed only by the affection for home itself in the mind of each employee.

That enlightened conception is not of recent origin, but the opportunity for its fruition of the altruistic presented itself when the matter of using the roof of the new building came up for discussion.

A flat factory roof holds wonderful possibilities as a place of recreation and happiness and even of artistic achievement. Yet too few roofs are used for such purposes. Unhappily there are very few, although a little forethought and planning can convert a veritable desert into a charming oasis and, too, the lackadaisical attitude of an employee whose chief interest lies in the flight of the working-day can be turned into a viewpoint of enthusiasm and affectionate regard.

To win and retain the devotion of the employees it is necessary in these days of welfare promotion to take a constructive interest in the social activities of the men who by their work make a plant a success or a failure.

The day of working in a dark, dusty, dingy shop with

besmirched windows and poor lights and no ventilation is past. The time has been that the employee would come to work in the morning, put in an unprofitable day with a rankling feeling in his heart because of the evil, deleterious conditions under which he labored, and then sought relaxation in a manner that usually made him more unfit than ever for work on the succeeding day.

An annual event at the Globe Works is the painting of the interior of the entire plant in white, giving it the bright, vivid appearance that enlivens the faculties of all who work there. The psychologic value is unmistakable. Knowing that such a desirable effect can be produced in that manner it was decided to provide facilities on the fourth floor and the roof for an organization to be administered by the rank and file.

All of the company's 350 employees are eligible to membership after 30 days in its service. The officers and board of directors are elected by the individual vote of all employees. A small monthly membership fee is charged.

The Globe Social Club was granted articles of incorporation by the State of Ohio on Feb. 19, 1919. The club, as stated in the articles, "is formed for the purpose of the promotion of harmony and good-fellowship, and the welfare of and the social intercourse between the employees of the Globe Machine & Stamping Co. of Cleveland, and for the uplift of the intellectual standard of these employees, as well as to entertain and amuse them."

From the main entrance of the building a monumental staircase of steel with an ornamental wrought-

iron railing leads to a commodious waiting room on the fourth floor.

That room has marble walls and a decorative plaster ceiling. It subdivides the fourth floor into a large exhibition room devoted to the display of the company's products, and the clubrooms. The waiting-room, while decorative and attractive in character, retains the atmosphere of modern business and prepares the visitor for entrance into the commercial precincts of the exhibition room or the social confines of the club. A short corridor leads to the large lounging room and ladies' restroom.

The lounge is 60 ft. long x 40 ft. wide. It has antiqued oak paneling on the walls and ornamental antique plaster ceilings. The room is luxuriously furnished with wicker chairs, writing and game tables, and handsomely upholstered divans. The somber dignity of the oak paneling and furniture is mellowed by the tasteful cushions of the wicker chairs and the window tapestries. Tables have been provided for card-playing, checkers, chess and dominoes.

A convenient wall fixture permits the attachment of a portable motion picture machine for projecting the film against a roller screen which, when not in use, is ensconced in a hollow rafter at the north end of the lounge adjoining the library.

From the library at the north end of the building a wonderful view of Lake Erie and Edgewater Park, one of Cleveland's beautiful recreation spots, can be obtained. The library contains books that cover the range of the world's best literature including several notable works of reference.

Popular magazines and trade and technical papers arrayed on tables in the library and lounge furnish the best opinion and current news in their respective fields.

A large English inglenook finished in tiles and old adze hewn woodwork is the focal point of the entire floor plan with entrances from the lounging room, library and bowling alleys.

All of these rooms have been inspired by examples of English Tudor period interiors and are deco-

rated with modern furniture and hangings inspired by the same period.

The bowling alleys are furnished with long quaint benches for the players and spectators. Small square lockers under one bench are used for keeping the personal belongings of the players, and the space under another bench is used as a repository for the bowling balls when not in use. The alleys are a place of light, noise and gleefulness, the social center of the club from which emanate sounds of nightly revelry, especially when an erratic member delivers the famous "gutter" ball.

The ladies' room is in antique blue and old rose with furniture, rugs, walls, and hangings in perfect harmony, the soft blue tone having a restful, soothing influence on all who enter. A spacious lavatory and shower bath done in sanitary tile and marble, afford a respite from weariness at the end of a busy day.

From the fourth floor a stairway leads to the roof. One first enters a large greenhouse that, because of its unusual location, surprises and delights the visitor. The greenhouse is used for propagating cut flowers for the clubrooms and offices. It is filled with scores of ferns, flowers, vines, and other growths. Two skylights in the middle of the house used for illuminating the clubrooms beneath are artistically surrounded by plants that hide their sharp, angular outlines. Two artificial tree trunks which are thickly interspersed with small tendrils, vines and other forest growths, lend the appearance of age.

Entrance is then made to a low, flat-roofed brick structure containing a small but beautiful bathroom and a living-room whose coziness is enhanced by a brick fireplace and a quaint mantelpiece. On both sides of the living-room are rooms, each of which contains a built-in bed and an ample wardrobe. The woodwork is antiqued oak with painted decorations.

The Spanish garden is entered from the bungalow by two French windows. The focal point is a large gazing globe mounted on a pedestal in the center. The garden is laid out with geometrical accuracy and is



These Clubrooms, Splendidly Fitted Out for Social Intercourse, Reading or the Thoughtful Introspection of the Inglenook, Are Believed to Be the Answer to the Saloon, Street Loafing and the Irritants of Daily Life That Spoil the Worker for His Work

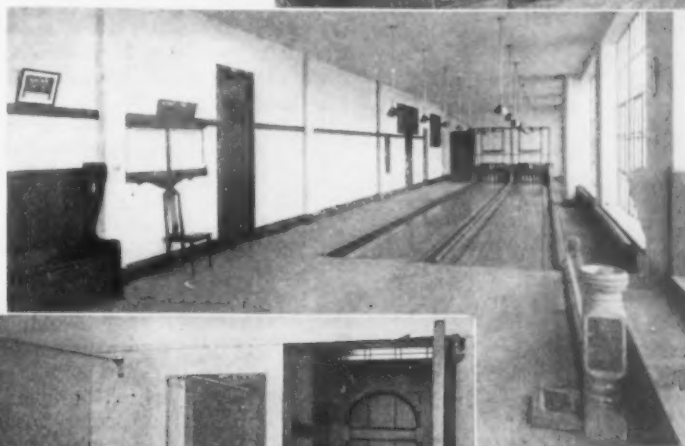
an example of precision and nicety. Many cypress and fir trees of various sizes and shapes placed at regular intervals give the spot a balance and harmony that strike the eye as soon as it is seen.

At the extreme end of the garden is an exedra with wall fountain, from a recess of which a frog looks out in mute solemnity. His capacious mouth serves as the outlet for a silvery stream of water which lends a sprightly charm to the classic dignity of the garden as a whole.

The garden commands a view of Lake Erie to the north and the city of Cleveland to the east and west for many miles. Both the bungalow and the garden have been inspired by ex-



Relaxation, Sport and Rejuvenation Are Provided by a Rest-room for the Women Employees, Bowling Alleys and Shower Baths



amples of the Spanish renaissance and together they present a striking illustration of Hispanic architecture.

Beyond the greenhouse in a continuation of the garden is an astronomical observatory equipped with a powerful Alvin Clark telescope. The revolving dome has an open segment through which any quarter of the heavens can be observed.

Campaign to Speed Up Public Building

The National Federation of Construction Industries, whose members are mainly manufacturers of materials used in construction of buildings, is conducting a campaign from its general offices at 757 Drexel Building, Philadelphia, with the avowed purpose of influencing the United States Government, the States and municipalities of the country to concentrate into the immediate future their programs of public works which would normally be extended over the next several years.

Predicting that costs of construction will advance rather than decline, the association in one of its statements says: "Bolstering up prices by useless public expenditure is always to be discountenanced; it is, however, generally admitted that the Federal and State governments and municipalities could now proceed with the construction of necessary and desirable public works in order to facilitate the resumption of general business."

Recent reports from all sections of the United States to the association indicate that, after a protracted period of hesitancy on the part of consumers of construction materials, business is now steadily increasing. Building permits throughout the United States were 6 per cent of normal in November, 1918; 10 per cent in December; 20 per cent in January, 1919, 40 per cent in February and 65 per cent in March.

Attention is called to the fact that prices of construction materials have not advanced in proportion to other products, the composite advance in prices of construction materials up to November, 1918, having been 84 per cent as compared with an average advance in the prices of all commodities at that time of 116

per cent, this comparison being based on the composite index figures on 313 commodities given by Dun's Review. A statement by the association says:

"The failure of construction material prices to advance beyond 84 per cent while the average of all prices advanced 116 per cent was due to building inactivity during the war. Business men now generally concede that the nation is on a permanently higher price level, and construction material prices are at this time slowly rising to that level."

British Iron and Steel Profits 1874-1888

In view of the uncertain future conditions, the following table is interesting. It is taken from a statement submitted on behalf of the iron trade before the Board of Trade Inquiry under the Railway and Canal Traffic Act of 1888, and shows the gross annual amount of the profits of the iron trade, assessed to income tax, and the average gross profit per ton produced in the years 1874-1888:

Year	Gross annual value of profits, etc. £	Production, Gross Tons		Average gross profits per ton, Shillings
		Pig iron	Manufactured iron and steel	
1874	7,218,053	5,991,408	2,500,000*	9,121,908
1875	7,260,892	6,365,462	2,500,000*	9,573,462
1876	3,855,891	6,555,997	2,500,000*	9,883,997
1877	2,794,984	6,608,664	2,500,000*	9,995,664
1878	2,315,077	6,300,000	2,500,000*	9,783,027
1879	1,933,813	6,009,434	2,500,000*	9,518,945
1880	1,720,610	7,721,833	2,500,000*	11,517,215
1881	2,178,534	8,337,464	2,681,150	12,898,333
1882	2,904,621	8,493,287	2,841,534	13,444,470
1883	2,962,609	8,490,224	2,730,504	13,229,608
1884	3,010,725	7,528,966	2,237,535	11,541,427
1885	2,265,259	7,297,295	1,911,125	11,096,465
1886	1,785,927	6,870,665	1,616,701	10,752,036
1887	1,502,976	7,441,927	1,701,312	12,188,746
1888	1,215,750	7,898,634	2,031,473	13,235,643

*Estimated.

It will be seen that for this purpose all classes of material are lumped together, says the *London Iron and Coal Trades Review*, and the assumption made that all classes of output realized the same profit. It shows the very low profits that were realized in 13 out of the 15 years following the Franco-Prussian war.

GREETED BY FOUNDRYMEN

President Backert, of American Association, Cordially Received in England

For the purpose of establishing closer relations between American and British foundrymen and to arrange for delegates from abroad at the foundry convention which will be held in Philadelphia during the week of Sept. 29, A. O. Backert, president of the American Foundrymen's Association, made a trip to Europe during April, May and the early part of June. While in England he was tendered a number of entertainments by the British Foundrymen's Association and other technical societies. Meetings and dinners were held in Coventry, Sheffield and Birmingham on April 30, May 3 and May 5 respectively. In addition, a number of plant inspection trips were arranged. At the plants visited the American flag was hoisted in honor of the visitor as a representative of the United States.

The first formal function was a complimentary dinner to the president of the American Foundrymen's Association, which was given by the Coventry branch of the British Foundrymen's Association on Wednesday, April 30. The guest of the day was warmly welcomed by Andrew Harley, who proposed the toast "The American Foundrymen's Association," and said he sincerely hoped the brotherly feeling which had been created between the British and American people during the war would be perpetuated.

In responding, Mr. Backert expressed his appreciation of the unusual cordiality of his reception, which, he said, was a compliment primarily to the American foundry industry. He hoped, he said, that the day might soon come when the American Foundrymen's Association could reciprocate in kind. The speaker also laid stress on the wonderful industrial achievements of Great Britain during the war, particularly in the castings field.

The dinner at Coventry was followed by a general meeting of the Coventry branch of the British Foundrymen's Association, at which Mr. Harley occupied the chair. In an address at this meeting Mr. Backert said in part: "When it comes to precision work and quality production we Americans must take our hats off to the British foundrymen. I am specially impressed with the progress of British manufacturers in the heat-treating field. In some respects our development as regards the heat-treatment of castings in the United States is in its

infancy. We feel we have a great deal to learn from Great Britain along this line, and the foundrymen of America certainly appreciate the generous spirit of co-operation displayed everywhere in the United Kingdom."

A general meeting of the British Foundrymen's Association, at which members from all parts of the country were present, was held at Sheffield on Saturday, May 3. It was presided over by Thomas H. Firth, Wicker Iron Works, Sheffield, president of the British Foundrymen's Association. The complimentary dinner took place at the Grand Hotel. In the addresses of welcome and response the importance of Sheffield as an iron, steel and foundry center was emphasized. Sheffield district furnished 90 per cent of British steel requirements during the war. President Firth, in introducing the guest of the evening, pointed out that the British Foundrymen's Association, although founded only in 1903, now has 1600 members, and is, therefore, the largest foundrymen's association in the world.

In responding, Mr. Backert referred again to the unusual warmth of his reception. He extended a cordial invitation to visit the international exhibition of foundry and shop equipment and the convention in Philadelphia in September. Mr. Backert also sketched the foundry development of the United States and made a few remarks on the labor situation, and in conclusion expressed his appreciation of the great technical achievements of the British castings producers.

The final welcoming function tendered the president of the American Foundrymen's Association was held at Birmingham, Monday evening, May 5. Dinner was served at the Queen's Hotel, after which a general meeting was held at Birmingham University. As previously mentioned, this dinner and meeting were held under the joint auspices of the Birmingham branch of the British Foundrymen's Association, the Birmingham Metallurgical Society, the Birmingham local section of the British Institute of Metals and the Staffordshire Iron and Steel Institute.

In his concluding address at Birmingham Mr. Backert again expressed his appreciation of the warmth of British hospitality and his belief in the necessity for fostering closer relations between the productive industries of the United States and the mother country. He also referred to the great achievements of Professor Turner in the metallurgical field, and pointed out that science is really the only international language. He also urged the promotion of closer relations between scientists and foundrymen in order to improve the art of making castings throughout the world.

Fertilizer Slags from Low Phosphorus Ore

Improvements in producing steel and high phosphorus slags are covered by a patent (U. S. 1,299,072—April 1, 1919) granted to William R. Walker, assistant to the president, United States Steel Corporation, 71 Broadway, New York. To produce a slag rich enough in soluble phosphates for use as a fertilizer has been found quite practicable in foreign countries where the ores contain a comparatively high content of phosphorus, but most of the ores in the United States, says Mr. Walker, are low in phosphorus and therefore the pig iron from these ores has not contained enough phosphorus to produce a rich slag.

According to this invention the slag will be made richer in phosphates than if the pig iron were converted into steel directly in the open-hearth or electric furnace. With a comparatively low-phosphorus pig iron the inventor has secured a slag running considerably higher than 12 to 13 per cent of commercially available soluble phosphate.

The process consists in smelting the ore and forming pig iron, desilicizing in a Bessemer converter to reduce the silicon content without substantially reducing the percentage of phosphorus, thoroughly separating all silicious slag from the desilicized metal, and refining the desilicized metal with a basic slag, removing the slag before the end of the refining operation and when it contains the greater part of the phosphorus to be extracted, adding slag-forming materials to com-

plete the refining operation and transferring the final slag to the charge in the blast furnace.

The complete process is claimed to result in securing in the slag all the phosphorus in the ore, less the insignificant amount in the steel, and of extracting it in a slag of the highest possible phosphate content; a residuum of phosphorus remaining continually in circulation in the plant.

A new open-hearth steel foundry will be built in Alliance, Ohio, by the Machine Steel Casting Co., which will be incorporated with a capital stock of probably \$1,000,000, with \$600,000 paid in. The company will be affiliated with the Alliance Machine Co., and W. H. Purcell, president of the latter company, will be at the head of the new company. A large part of the output will be used by the Alliance Machine Co., which now has its steel castings made by other foundries. A site has been obtained, and it is expected that contracts for the equipment will be placed shortly.

The Morgan Engineering Co. Alliance, Ohio, has taken a contract for the cranes for the new open-hearth plant of the Weirton Steel Co., Weirton, W. Va. These include four ladle, two soaking pit, two floor charging, and one stripping crane.

The Hydraulic Press Mfg. Co., Mount Gilead, Ohio, has opened a branch office at Pittsburgh, in the Union Bank Building. J. E. Holveck is manager.

food in the kitchen, whereas only about 30 min. for the distribution of it to the men.

The most advantageous position for the service counter, admitting the shortest line for the food route, was to place it in front of the kitchen and in the center of the dining-room. The serving counters, so situated, can be arranged in two ways. Either parallel to the long side of the building or across same. The second alternative has the following advantages over the first: It gives a straight run for the food trucks from the kitchen; allows more space alongside the building for the waiting line of men, and reduces the number of help necessary inside the service counter, especially after the first rush is over, when both sides can be operated with reduced number of help for both counters. Also, it allows for a single coffee service and a single cash register service after the rush is over. These advantages have decided us to adopt this latter method.

As seen on the plan, the service counter has all steam tables with dish warmers doubled on both sides in order to dispatch the service. The trays and silver are replenished through windows in the walls of the kitchen, which is a helpful feature during the rush.

Articles like ice cream, milk, cigars, candy and other refreshments which are liable to be taken by the men and women independently, are dispensed over a special counter near the exits. In such a way the main service counter is considerably relieved.

Another question of importance was to decide the method of paying for the food, and, after careful investigation, it was found that the best way is to have a sufficient number of cashiers and the patrons to pay as they leave the service counter.

The other possibility, of using checks, received at the service counter and paid at the exits has disadvantages in our case, as it would necessitate a special kind of checks for the men who buy only at the cigar and ice cream counter, and consequently impair the control.

A further problem was to determine whether chairs, stools or benches are to be used. The stools proved the most advantageous as they once for all fix the space

which the patron can occupy; also take up the least room and do not obstruct the aisles.

To facilitate the service the patrons are required to place their soiled dishes and trays on special dish trucks conveniently located, before leaving the room. These trucks, after being filled to capacity, are wheeled over to the dishwashing department by the help.

A description of the cafeteria will not be complete if the means and provisions for proper health and sanitation are not mentioned. An industrial restaurant which has to dispense a limited choice of food to a very large number of men must be so arranged that there is a practical certainty that conditions detrimental to health do not occur and that the food be served clean and attractively. With this object in view, the company provided all practical means to assure sanitation and cleanliness of the restaurant.

The ventilation of both the dining-room and kitchen is taken care of by large monitors, 100 per cent ventilated, also two-thirds of the glass surface of the windows is ventilated. The windows reach up to the ceiling and so eliminate impure air pockets.

A generous net of drainage has been provided, with vents and grease traps where necessary, and the concrete floor is to be flushed with water at frequent intervals. A sanitary cove is provided around the walls. All counters are raised 6 in. above the floor to insure ventilation and easy cleaning, and the walls have been painted with waterproof oil paint, to be flushed at the same time as the floors. The interior is painted with mill-white, with a dark green wainscoting.

The toilets, lockers and wash facilities are provided in a mezzanine floor at the western end of the building and away from the kitchen equipment.

The drinking water is cooled by the ice machine and dispensed through an improved type of bubbling fountains which have a protected nozzle and an inclined flow of water, recent bacteriological investigations at the University of Minnesota having shown that the generally used bubbling fountains with vertical water streams are unhygienic and direct propagators of diseases.

SCRAP PILE GROWING

More Material in Hands of Government in June Than in April

WASHINGTON, June 10.—In the face of a stiffening market Uncle Sam's scrap pile is growing. The figures for June 1, which have been completed by the Surplus Property Division of the War Department, show a total of 491,590 tons of various items of iron and steel scrap, besides 305,124 tons of raw, semi-finished and finished material, a present total of 796,714 gross tons.

In the department's list of April 24 (*THE IRON AGE*, May 1, 1919), there were only 31,317 tons of scrap out of a total of 605,235 tons of surplus iron and steel. Of that amount, approximately 100,000 tons have since been sold, with a net return to the Government of about \$1,200,000.

In the meantime, however, the gradual crystallization of the War Department's future policy has put additional material into the surplus property lists. The department decided to keep for its reserves, for instance, only completely machined shells. This put an enormous total of partly finished shells into the scrap pile. Originally these had been listed as "semi-finished material" under the head of forgings, but the chemical analysis of the material and the small lengths of the pieces induced the Government officials to change the rating to scrap. The newest list carries 49,653 tons of cast steel slugs as "semi-finished material," but it would not be surprising if it were found necessary finally to put these also into the scrap list. Most of these slugs are less than 24 in. long and 5 in. thick, so they would have to be heated and welded before it would be possible to roll them to advantage. The biggest item in the scrap list is made up of 331,507 tons of shell forgings. These are the cleanest kind of scrap and the department officials are expecting a corresponding sale price.

So far say officials some of the prices have been lower than expected, although a price of \$18.10 per ton was realized in Pittsburgh on Friday for clean steel forgings. The iron ore in the surplus list—733 gross tons—is at Philadelphia. It had not been reported in the April inventories and the Washington authorities have no record of its origin.

Although future dispositions are expected to lower the totals from now on, there will probably be new additions from later contract adjustments. In many of these the Government takes over the unfinished material in the hands of the contractor and often his raw material as well. This is then added to the surplus property list.

The inventory of the iron and steel surplus as of June 1, follows in gross tons:

Raw Material

Iron ore, 733; pig iron, 3956; ferrosilicon, 276; ferromanganese, 442; spiegeleisen, 105; total, 5512.

Semi-finished

Ingots, 20,931; billets, 147,166; billets, forging, 132; shell steel bars, 5673; cast steel slugs, 49,653; total, 223,555.

Finished Material

Bars, hot-rolled, 22,864; bars, cold-rolled, 22,833; iron bars, 229; strip steel, 1765; structural steel, 2580; angle iron, 261; reinforcing steel, 162; plates and sheets, 8270; tin plate, 2,090; galvanized iron (sheets), 90; black iron (sheets), 389; pipes and tubes, boiler, 697; steel tubing, seamless, 1337; iron pipe (soil), 1; armor plate, 1573; manganese steel, 247; nickel steel, 2465; chrome nickel steel, 28; vanadium steel, 428; high-speed tool steel, 164; tool steel, carbon, 1221; rails, steel, 67; wire, 1036; welding rod, 61; total, 76,057.

Scrap

Shell forgings, 305,124; heavy melting scrap, 12,976; heavy melting nickel steel, 8121; steel forgings, miscellaneous, 51,964; steel castings, 1021; miscellaneous scrap, 61,769; cast iron, 2133; malleable iron scrap, 15,413; borings and turnings, 948; borings and turnings, nickel steel, 2912; high-speed scrap, 156; sheet steel scrap, 112; low phosphorus steel, 2558; total, 491,590. Grand total, 796,714 gross tons.

American and British By-Product Coke

Why American Makers Lead the Way —A British Analysis of the Industry— Suggestions to the British Producers

CONTENDING that three main factors have contributed toward the phenomenal growth of the American by-product coke industry, Richard Gunderson, in an article "Why American Coke Oven Practice Leads the Way," in the *Gas World* of March 1, 1919, a British paper, gives his reasons for this statement. This British writer had the advantage of spending considerable time in the United States studying coke oven operations and was on the administrative staff of the largest coke-oven builders in this country. An abstract of his article follows:

The three main factors referred to are as follows:

Application of science and research work to the industry.

Location of coke plants at the steel works.

Economic conditions were giving the United States Corporation control over the supplies of raw material, over transport and over sales and distribution of these products.

Owing to the above conditions, which the Americans have created by employing great foresight, skill and courage, the coke oven industry in America is vastly more efficient than that of any other country. Of the 2014 ovens erected from 1915 to 1919 in Great Britain, about 1000 ovens represent those which have been added by batches of five and ten to existing plants as a war measure for utilizing the full capacity of the by-product plants; so that the average annual coal carbonizing capacity per oven of the complete installations erected during the four years is approximately 3900 tons. But, making every reasonable allowance for conditions which mitigated against the British ovens, the broad fact remains that America is outpacing us in a way that must make us appear hopelessly out of the running. Fortunately, we have a long way to travel before the race is ended.

Application of Science and Research Work

Twelve years ago America commenced upon her new era of by-product coke oven construction work. Prior to 1907 by-product ovens in the United States could be numbered by hundreds. During her panic year of 1906 she was energetically planning big things in connection with her iron and steel industries. The United States Steel Corporation, which has erected about 4000 by-product ovens since that period, resolved to undertake the modern pioneering work relating to coke ovens. The Steel Corporation sent a strong committee of experts to Europe to investigate all the known types of ovens. Many tests were made in the ovens of the various makers. Much careful research work was accomplished, and after completing its work in Europe the committee returned to America with a definite policy of constructive coke oven work. That policy led to the erection of vertical-flued regenerative ovens instead of the horizontal-flue type. Since 1907 the Steel Corporation has not built any other type. The largest oven which was erected in Europe at that time was an 8-ton oven. This size was rejected by the committee as being too small for American requirements. A larger oven—12½ tons capacity—was decided upon. The coking time in Europe was then over 30 hr. at the best plants. The committee decided upon a coking time of 24 hr., and actually achieved 16½ hr.

Proportioning and Mixing of Coals

As regards the right preparation and mixing of different coals, there are still very many connected with the coke oven industry in Great Britain who believe that the shorter coking time in America is due to the use of unwashed coal for charging the ovens. This, however, is contrary to the facts. On the authority of C. A. Meissner, of the Steel Corporation, over 20 per cent of the coal used in by-product ovens in America is washed coal. Moreover, the same authority states that

there are by-product coke oven plants in America using washed coal, and that the coking time for such plants is only slightly over 17 hr. The important factor, which seems to be too little appreciated in this country is that, after washing, the coal is dried so that the moisture content is reduced to 5 or 6 per cent.

Another feature of American operating practice which needs emphasizing is the correct blending of high and low volatile coals, so that the mixture averages about 29 per cent volatile matter. In America the drying of the washed coal is carried out in a scientific, mechanical and continuous manner, generally by centrifugal means. In Great Britain draining bunkers only are employed, and the moisture content seldom gets much below 10 per cent; it is usually 15 per cent, and sometimes it is even higher.

Uniformity of Operation

With reference to uniformity of operation of plant, the Americans attach great importance to the maintaining of uniformity in the preparation of the coals as above referred to, for it is upon this feature of the operation that the quality of the coke made depends. As regards American coking time, special stress must be laid on the fundamental fact that the Americans have succeeded, by skill and perseverance in the science and art of coking coal, in creating the same coking time with coal mixtures of 20, 40, 80 and 100 per cent more or less high volatile coals.

This vital question of coke oven operation is not yet sufficiently understood by the home experts. They claim that the coking time increases in proportion to the width of the oven and the higher volatile content of the coal. But here again American coking practice proves otherwise, for the American operators, with varying widths and tapers of ovens and with varying mixtures of high volatile coals, have effected a remarkably similar coking time, ranging from 16.5 hr. at Joliet, Ill., in an oven of 19 in. average width, to 29 hr. at Farrell, Pa., with a width of 17 in. and no taper. This has been one of the aims of the American coke oven scientists, and they have achieved it handsomely.

How has it been done? Let the home specialists, both coke-oven builders and operators, note well the answer, which is: By uniformity of coke oven operation and burning of ample gas for the heating of the ovens. By these simple methods they have caused the coking time to be directly in proportion to the width of the oven. Every coke oven engineer is aware that scientific and uniform operation of the oven is the quintessence of successful coke-making, other things being equal. He knows that over-coking is detrimental to the production of good metallurgical coke, and that in pushing over-coked charges a larger percentage of small coke is made than when pushing a normally coked oven, owing to the coke being smaller and more friable. Under-coking and over-coking are more frequent in Great Britain than need be, if uniformity of operation and scientific control—which should be adequately paid for and more than pays for itself—prevailed. The right type of oven, though very important, is of less importance, in the writer's opinion, than scientific operation.

Unfortunately, the social system has a great bearing upon the working of coke ovens, and in Great Britain, at any rate, the oven workers will not push more than a certain number of ovens each shift, because their interest in the work is confined to one of wages only. In America a bonus on production above an agreed average is paid, but it is also stipulated that an increased production all round above the average shall not be used by the employer as a weapon for increasing the average output which constitutes a fair day's work, changes of the standard output being arranged by

mutual consent. Without the active co-operation of the workmen the Americans would never have succeeded in reducing their average coking time to well under 19 hr., against 32 to 36 hr. in Great Britain.

Location of Coke Plants at the Steel Works

The concentration of immense capacities of steel production at a comparatively few plants in the United States has determined in no small measure the policy of American steel men to build the ovens at the steel works. Coking coals of various grades are transported from the collieries to the steel works, traversing in some instances as much as 700 miles of railroad. This is done because it is cheaper to transport coal than coke and because the surplus gas from the ovens—and there are no waste-heat type of by-product ovens in America (they are all of the regenerative type)—is used to much greater advantage at the steel works than it could be used at the collieries. At Gary, Ind., the steel works have a yearly capacity of approximately 3,500,000 tons of steel, and not a truck of coal a year is used outside the coke ovens. At this plant there are 700 13-ton coke ovens operating on a coking time of 18 hr., and the rated coal carbonizing capacity is 4,475,000 tons a year. The amount of rich surplus gas from the ovens is approximately 70,000,000 cu. ft. a day. Practically the whole of this gas is consumed at the steel works and in the big industries associated with the town of Gary.

Unity of Control

Unity of control has developed a wonderful efficiency in production and distribution of the various unit companies, without impairing the efficiency of any of the companies or their autonomy in the operation of their plants. They enjoy all the advantages of self-government in regard to the operation of their own plants, but, as regards a general policy governing production and distribution of products, they are guided by agreements and understandings, which have been effected by them collectively through a body known to all the world as the United States Steel Corporation. Assisted by agreements and understandings and the good will and co-operative efforts of its subsidiary companies, the United States Steel Corporation has acquired control of railroads, shipping, coal mines, iron-ore deposits, waterways, banks, and most of the metals entering into the manufacture of iron and steel. The great efficiency and economy of energy which this unity of control secures is well reflected in the profit per ton of steel manufactured by the companies belonging to the Steel Corporation. Before the war it was slightly over £3 per ton of steel, and during the war it averaged more than £7. On the other hand, the profit of the Independents was about £1 8s. before the war, and roughly £3 5s. during the period of the war.

In Great Britain the movement towards amalgamation of the various coal, iron and steel companies has only very recently begun to take definite shape. Even these amalgamations, important as they undoubtedly are, represent but puny efforts compared with those of the Steel Corporation, with its invested capital of \$660,000,000. How much the conflict of individual interests in the coal, iron and steel trades in Great Britain is responsible for the backward state of the British coke oven industry may be realized when the methods of the development of the industry in both countries are taken into account.

Suggestions for the British Industry

The solution of the problems of our own coking industry should be sought on American lines and this if for no other reason than that the question of the production of cheap power is so closely allied to the by-product coke oven industry. What remedies can be applied for overcoming the backward state of the coke oven industry in Great Britain? A brief answer is embraced in the following three points:

Improved operation of existing coke oven plants.

Federation of all coal, iron and steel industries under one executive body, so as to secure co-ordination and unity of command and control of production and distribution.

The creation of a united national committee on coal carbonization and iron and steel production and distribution.

In regard to the first, there is certainly room for improvement in the existing methods of drying coal. A uniform 8 per cent moisture in the coal used for coking would somewhat reduce the coking time. This means the pushing of more ovens, which it is safe to predict the workmen will not do unless they receive adequate compensation. Then there are losses in ammonia through inefficient scrubbing, where the indirect process of ammonia recovery is used. These losses could certainly be avoided if proper plant and expert supervision were employed.

With reference to the second point, the federation of the coal, iron and steel industries is admittedly a tremendous problem. Yet it is insignificant compared with the difficulties of the war, which were overcome through necessity by co-ordination of effort and direction of energy. National waste of coal and power-gas could thus be avoided and large coke oven installations would be erected at the iron and steel works. The size and number of the coke oven plants in Great Britain and in America is significant. The economy which would result from the building of large ovens and large plants will be seen by considering a hypothetical case, as follows:

A large steel company on this side has a program for turning out 1,000,000 tons of steel per annum, and buys its coke in the open market. What are the comparative construction and operating costs of coke ovens constructed and operated according to best British and American practice, assuming that 1,000,000 tons of coke are required? The answer is given in the following table, representing British and American practice:

	Great Britain	United States
Washed coal, tons.....	1,340,000	1,340,000
Coal charge per oven, tons.....	11	13
Coking time, hr.....	28	18
	(12 per cent moist)	(6 per cent moist)
Number of ovens.....	390	212
Cost per plant, £.....	880,000	700,000
Operating charges per ton of coal....	4s. 4d.	3s. 6d.

These figures will give an idea as to the saving in operating and construction costs on the large capacity of coal to be carbonized. If such a plant were erected at a steel works the surplus gas available would be about 18,000,000 cu. ft.—450 B.t.u.—per day, if regenerative ovens were installed. By installing a combination oven, which could be heated either by its own gas, or by producer gas, or by blast-furnace gas mixed with coke oven gas, as much as 30,000,000 cu. ft. of surplus gas a day could be obtained.

The limit for the use of iron and steel has by no means been reached. Much steel can be used for house-building, for motor buses and tramways, for light railroads conveying produce to outlying districts which would become thickly populated if our land laws were brought up to date. Then our railroads need a huge quantity of iron and steel. The demand is not therefore likely to be met by our present iron and steel capacity.

If we are to use our best coking coals economically it is essential that all the sources of our coal supply should be under one directing committee of highly trained, technical experts in coal carbonizing and the manufacture of iron and steel. All new ovens should be erected at the steel works, where the greatest consumption of coke takes place. From the viewpoint of national economy all our new steel works should be of large units and located at different parts of the coast. This executive control board, which might be compared with the board of directors of the United States Steel Corporation, would bring together at one coking plant several coals of different coking qualities, thus enabling better coke to be made, and incidentally reducing the consumption of coke in the blast furnace. The deficiencies in the coking quality of one class of coal could be corrected by admixture with another suitable coking coal.

What this country will have to realize, if our productivity per capita is to keep abreast with that of the United States, is that the rivalries and trade jealousies of separate ownership must be eliminated, because these stand in the way of the concentration of large steel

works where improved and expensive machinery could be economically employed to stimulate and increase productivity. It might be observed that in America a machine is scrapped as soon as it becomes obsolete, no matter what its original cost might have been.

National Carbonizing and Iron and Steel Production Committees

If such committees are not already formed they should be formed at once. Then a strong committee of coal carbonizing, coke oven and steel experts should be sent to the United States to investigate and study on the spot modern coking and steel production. The committee should not confine itself to pleasant talks only, but it should be prepared, with overalls as part of its working equipment, for much hard, solid work, in which our excellent American friends show such proficiency.

SHIP MATERIAL TO BE SOLD

Emergency Fleet Corporation Will Dispose of Millions of Dollars Worth

The Emergency Fleet Corporation, through its salvage department, in Philadelphia, is planning for the sale of millions of dollars worth of surplus equipment and hundreds of thousands of tons of steel, much of which has been fabricated for shipbuilding contracts that have been canceled. At the Hog Island plant of the American International Shipbuilding Corporation there is steel for 50 ships which will probably not be built. This steel, upwards of 100,000 tons, may have to be sold largely as scrap. In addition to steel, the Emergency Fleet Corporation has on hand boilers, Diesel engines, some worth \$150,000 each, machine tools of all types, and even kitchen ware and dishes. An inventory has been made of a large part of the material and equipment which is to be sold, but no action will be taken until the future shipbuilding policy of the country is determined by the new Congress. If Congress decides to expand the American merchant marine by building more Government ships, a great deal of the surplus equipment may yet be saved, but if the shipyards are turned over to private builders, all of the Fleet Corporation's surplus will be put on the market.

Shortly after the signing of the armistice, practically all contracts for wood ships were canceled and many contracts for steel ships of small tonnage capacity were held in suspension. It now appears likely that none of these small ships will be built as they cannot be economically operated in competition with ships of large carrying capacity.

Some machine tools and a few small tonnages of scrap iron and steel have already been sold by the salvage department of the Emergency Fleet Corporation, but the bulk of its selling is yet to be done. A list of possible purchasers is being compiled and offerings of material and equipment will be sent to them at the proper time. It is probable that the Fleet Corporation will follow the method adopted by some other Government departments of selling by means of sealed proposals. The Fleet Corporation's surplus property abroad is being sold by the American Steel Export Co., Woolworth Building, New York.

Reduction of Canadian Tariff

Sir Thomas White, Minister of Finance, in his budget speech in the House of Commons on Thursday, announced a number of tariff changes in regard to the importation of manufactured goods. If the new budget does not contain as much tariff reduction as Western Canada wanted, it contains more than most of the people in the rest of Canada expected. The customs duties imposed for war revenue have not been completely repealed, but a clean sweep has been made of the 5 per cent war time addition to the rates on British goods and the 7½ per cent war time addition made to the duties on imports from other countries has been dropped on agricultural implements, petroleum oils, mining machinery and bituminous coal, etc. That is to say, the duty on these articles coming from foreign countries is

Then again, a study into the intricate but efficient working of the United States Steel Corporation with its 140 steel plants, would be well repaid by the knowledge acquired on how industrial efficiency may be attained.

What the Americans have achieved by science and economic control of raw materials can be achieved in this country, if we have but the will to do and dare. For it is essentially by skilful daring and doing that this country, in the new era of production and distribution which the world is now entering upon, can hope to keep its place and to maintain it in the home and foreign markets. To realize this hope the scientific coking of coals in large ovens, at large plants, in a short coking time and by united control and command of raw materials, ships, banks, transport and railroads, must first be made an accomplished fact.

the same as it was before the war, and there is no longer a 5 per cent addition to the preference rates on British goods. There are considerable reductions in the general tariff rates on agricultural implements. For example, cultivators, harrows, horse rakes, seed drills, manure spreaders and weeders, and parts of these implements, are made dutiable at the rate of 15 per cent ad valorem compared with the former rate of 27½ per cent.

Mr. Schwab's South American Plans

WASHINGTON, June 10.—“We must depend upon our friends of the South for raw materials, if we are to make the east coast of the United States a successful steel manufacturing center,” declared Charles M. Schwab, chairman of the Bethlehem Steel Corporation, in an address before the Second Pan-American Commercial conference here. “I and my friends have so much confidence in the honorable intentions and treatment of American capital that I am risking my all, my fortune, my reputation, my company, upon the basis of securing the raw supplies of ore and other materials from our South American republics.

“I have recently, as many of you know, opened at a very great expense in Chile, on the west coast of South America, the largest docks and shipping facilities in South America. I have now under construction and under way, just started since the war is over, 20 of the largest cargo ships that have ever been built to carry 20,000 tons of iron ore in each cargo, to ply between the west coast of South America and the eastern ports of the United States.” O. F. S.

Patents in the War

WASHINGTON, June 10—Twenty-five hundred patent applications were kept a secret and 1000 more were withdrawn or temporarily withheld under special orders from the Army and Navy Patent Board to prevent their disclosure to the enemy during the war. Since the signing of the armistice, most of these have been made public.

A preliminary report has been made to the Commissioner of Patents by the Primary Examiners Advisory Committee which he appointed in April, 1917, to guard American inventions against enemy use during the war.

“Inventions won this war,” declares this report; “hardly a war weapon, or article of equipment, shelter, food or clothing but has been improved upon and all things made possible for America or the ‘Yanks’ who have gone over the top over all the ‘impossible objectives’ within reach at the front and at home. Back of it all is American energy and invention.”

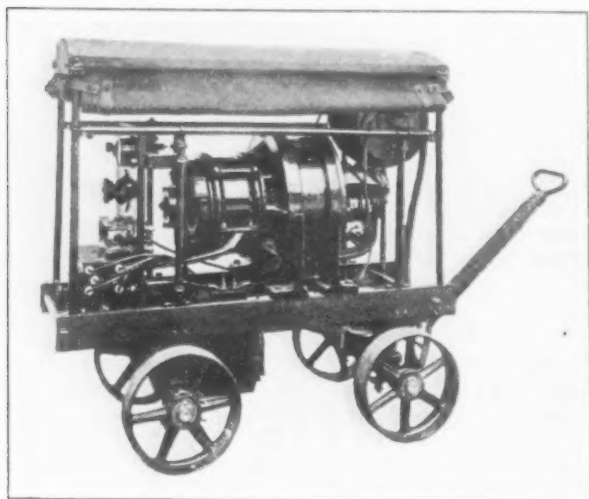
The Canadian Government has placed an order with the Algoma Steel Corporation, Sault Ste. Marie, Ont., for 10,000 tons of steel rails. This is the second order the company has received in a few days, the first being for 8000 tons of rails for the Belgian Government. It is expected that the Canadian Government will from now on be placing considerable orders for rails and rolling stock for the Canadian National Railways, whose system is greatly run down and badly in need of new equipment.

Portable and Stationary Arc Welders

A line of electric arc welding machines developed to meet the requirements of machine shops, railroads and ship yards, is announced by the U. S. Light & Heat Corporation, Niagara Falls, N. Y.

For shops where it is practicable to bring the parts to be welded to within 50 or 75 ft. of the welding apparatus, a stationary type is provided; also a light weight portable machine is made which may be taken direct to the work in the shop or yard.

The welder is rated at 4 kw. and gives 200 amperes direct current, or less, with an arc voltage of 17 to 22 volts and open circuit voltage of 35 to 65 volts. It is made in the form of a converter for use on 100 to 125



Portable 4-Kw. Motor-Generator Arc Welder with a Rated Capacity at the Arc of 65 to 70 per cent

volts direct current circuits only, and in the form of a motor-generator for all other alternating and direct circuits. The converter weighs 665 lb. and, it is stated, delivers current at the arc through the arc stabilizing reactor with an efficiency of 65 to 70 per cent.

The motor-generator type consists of a 7½ hp. motor on the same shaft with a 4 kw. welding generator. Inherently regulated, compound wound, self excited, and with drooping voltage characteristic, it is claimed that the generator, as well as the converter, produces an arc peculiarly suited to arc welding.

For portable use a truck equipped with motor-generator, or converter, panel, reactor, cover and cable reel is supplied. The truck which is 28 in. wide, 55 in. high over the cover and 54 in. long, weighs with complete equipment about 1500 lb.

Milliken Mfg. Syndicate Organized

The Milliken Brothers Mfg. Co., Inc., Woolworth Building, New York, has organized the Milliken Mfg. Syndicate, Ltd., London, England, to handle all export trade for its different steel products, exclusive of North and South America. These products include steel transmission towers, radio towers and poles, as well as special structural steel buildings, known as Milliken buildings. Offices have been established at Amberley House, Norfolk Street, Strand, London, with C. T. Wilkinson, formerly representative for Milliken Brothers, Inc., in this section, and F. Sumner-Smith, up to a recent date managing director of the British Electric Equipment Co., Ltd., in charge. Arrangements have been perfected with the Widnes Foundry Co., Ltd., Widnes, Lancashire, to act as the local works for the new English organization, producing the various specialties for sale in the British Isles, British Colonies, etc. To provide for its western trade in this country, the Milliken company has established branch offices in the Majestic Building, Chicago; while to care for its Pacific Coast business offices have been located in the Rialto Building, San Francisco. The company is planning for general trade expansion; its shops, 136th Street and East River, New York, have been made ready

for active production, and considerable new equipment and machinery installed. At a later date a large galvanizing plant will be constructed. C. T. Clack is president; J. E. Jennings, vice-president, and Robert Grant, treasurer.

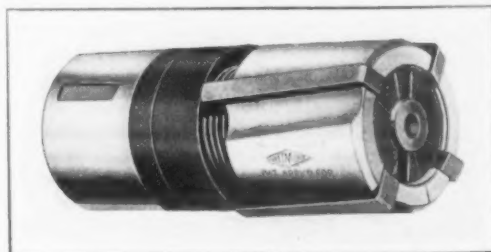
Welding of Alloy Steels

Many alloy steels are considered practically non-weldable. To facilitate their welding, welding powders containing both iron filings, to supply a fusible medium, and borax, to prevent oxidation, are sometimes used. In the *Zeitschrift des Vereins Deutscher Ingenieure*, of Feb. 19, 1919, Dr. N. Czako claims, according to a translation in the London *Engineering*, to weld various nickel, chrome and tungsten steels to a mild steel and also to a high-speed tool steel with the aid of a powder which is said to contain neither iron filings, nor borax, but which he does not further describe. He was anxious in the first instance to weld his high-speed steel (1) which contains 4 per cent of chromium, 4 per cent of molybdenum and 9 per cent of tungsten; the other alloy steels contained (2) 12 per cent of chromium, (3) 12 per cent manganese, (4) 3 per cent nickel, 0.5 per cent chromium, (5) 1 per cent chromium and 2 per cent silicon; (6) was a 1.6 per cent carbon steel and (7) a grey cast-iron. Photographic sections of his welds are reproduced in the journal mentioned. He welded No. 1 of his specimens to itself and all the others, in an ordinary coke fire; but his tests were merely made with plates 4 cm. by 2 cm., up to 1 cm. thick, which were welded to rods of the other material; in some cases the demarcation between the welded portion and the alloy was distinct, and not all his welds stood the hammer test.

New Expanding Reamer

The expanding reamer illustrated is a commercial development of a type of adjustable reamer which the Wetmore Reamer Co., Milwaukee, supplied to shell manufacturers during the war. A feature emphasized is the left hand spiral cutting angle of the blades. Where steady production, speed in cutting and accuracy are required, as was the case in shell manufacture, this cutting design, it is pointed out, was found to be well adapted.

By means of a wrench provided, a graduated screw collar which is counterbored in the front end of the



This Reamer Is Adjusted to Suit a Limit Gage by a Graduated Screw Collar, Operated by a Special Wrench

reamer body, may be manipulated to adjust the reamer to suit a limit gage. Each graduation of the screw collar indicates one thousandth part of an inch in diameter. No other tools are needed for making the adjustments.

The body is solid and attachment may be made to any arbor, although arbors are usually furnished; straight types for lathe reaming in machine shops, Morse taper arbors for drill press reaming, and floating arbors usually for turret lathe reaming. The standard size reamers are made in diameters from 1 to 4½ in., four blades being used on all sizes up to 3 in. and six blades on the larger sizes.

The General Electric Co., by the acquisition of all the common stock of the Cooper Hewitt Electric Co., Hoboken, N. J., has secured control of the latter company, which in the past 16 years has built up extensive business in industrial and photographic lighting.

The American Engineering Standards Committee

In many lines of engineering much excellent standardization work had been done before the war; the war emphasized its importance and showed most clearly the need of co-operation to prevent the confusion caused by the promulgation of overlapping standards by independent bodies. During the war the Government departments co-ordinated these efforts in certain lines and greatly assisted in unifying them. The American Institute of Electrical Engineers, American Institute of Mining and Metallurgical Engineers, American Society of Civil Engineers, American Society of Mechanical Engineers and American Society for Testing Materials, recognizing the value of what had been done, invited the Government departments of War, Navy and Commerce to appoint representatives to act with them to continue this work. The body so formed is the American Engineering Standards Committee. It has required considerable time to definitely formulate its objects, and to arrange methods for accomplishing them that would be effective without in any way interfering with the many organizations that have been doing such work.

A new constitution of the committee changes the name to American Engineering Standards Association, the change from "committee" to "association" being regarded as more fittingly indicating the wide scope of the interests involved.

The objects of the association are stated as follows:

1. To unify and simplify the methods of arriving at engineering standards, to secure co-operation among various organizations and to prevent duplication of standardization work.
2. To promulgate rules for the development and adoption of standards.
3. To receive and pass upon recommendations for standards submitted as provided in the rules of procedure, but not to initiate, define or develop the details of any particular standard.
4. To act as a means of intercommunication between organizations and individuals interested in the problems of standardization.
5. To give an international status to approved American engineering standards.
6. To co-operate with similar organizations in other countries and to promote international standardization.

Several important organizations interested in standardization will be invited to appoint representatives as soon as the necessary power is obtained. Any organization may request the association to approve standards which it has formulated, or to approve committees that it has appointed, and by so doing becomes a sponsor society.

The association in short is to bring together those interested in a common object, and when they have completed their work, will at their request, certify that it has been done in such a manner as to justify its adoption. The executive committee of the American Society for Testing Materials now passes on the composition of committees, ascertains that their conclusions are substantially unanimous, and if so, reports them to the society for acceptance or rejection. The association does the same for groups of organizations.

The association has headquarters in the Engineering Societies Building, 29 West Thirty-ninth Street, New York. Prof. Comfort A. Adams is chairman and Clifford B. LePage is acting secretary. George C. Stone, New Jersey Zinc Co., is vice-chairman and John A. Capp, General Electric Co., Schenectady, N. Y., Henry Hess, Philadelphia, and Harry N. Lathey, railway department, General Electric Co., New York, are members of the executive committee.

Cleveland Engineers' Meeting

The Cleveland Engineering Society and the Cleveland section of the American Society of Mechanical Engineers held an all-day meeting June 10. The members assembled at the Hollenden Hotel for registration, after which a paper was presented by S. T. Wellman and I. D. Thomas, of the Wellman-Seaver-Morgan Co., Cleveland, on "The Development of the Open-Hearth

Charging Machine." After the paper the party boarded the steamer City of Buffalo for Lorain, and inspected the plant of the American Shipbuilding Co. The program included an address by J. C. Workman, of that company. After the return of the party to Cleveland the annual dinner of the Cleveland Engineering Society was held at the Hollenden Hotel.

Detroit Meeting of Mechanical Engineers

The first professional sessions of the spring meeting of the American Society of Mechanical Engineers, Detroit, June 16 to 19, will be held Tuesday morning, June 17. One will be under the auspices of the research committee, at which the following papers are to be presented: The Present Condition of Research in the United States, Arthur M. Greene, Jr.; Research Work on Malleable Iron, Enrique Touceda, and The Organization and Conduct of an Industrial Laboratory, A. D. Little and H. E. Howe. Also to be received at this session are reports of sub-committees on flow meters, bearing metals and lubrication. A session devoted to industrial relations, held the same morning, will hear papers as follows: Industrial Personnel Relations, Arthur H. Young; The Status of Industrial Relations, L. P. Alford, and Certain Aspects of the Management Problem, Magnus W. Alexander.

Among the papers to be received on the morning of Wednesday, June 18, at a session under the auspices of the Mid-West Sections, are: Production of Liberty Motor Parts at the Ford Plant, W. F. Verner, and Electrical Method for Measuring the Flow of Fluids in Pipes, J. M. Spitzglass. A gas power session also will be held Wednesday morning.

At a fuel session, morning of Thursday, June 19, Pulverized Coal as a Fuel, by N. C. Harrison, and Pulverized Coal for Stationary Boilers, H. G. Barnhurst and Frederick A. Scheffler, will be read. Papers on miscellaneous subjects will be heard and discussed at a general session Thursday morning.

The convention will begin Monday, June 16, a council meeting being held in the morning and a business meeting in the afternoon, followed by a gathering in the evening when Mayor James Couzens, Detroit, will welcome the members. Ample time has been allowed for plant visitation and entertainment. Opportunity will be given to visit the Morgan & Wright Co.'s plant and that of the Ford Motor Co.

Summer Course in Industrial Management

The Pennsylvania State College announces its fourth summer session in factory organization, cost accounting, employment and scientific management, Aug. 11 to 23. This course is offered particularly for men engaged in industrial activities, as foremen, time keepers, cost accountants, store clerks, members of production or planning departments, superintendents and employment managers.

The lectures and discussions will be conducted by Major Hugo Diemer, formerly professor of industrial engineering at the Pennsylvania State College, now superintendent of personnel, Winchester Repeating Arms Co.

Open competitive examinations are announced by the United States Civil Service Commission as follows: Assistant superintendent of foundry in charge of castings division, male, to fill vacancies in the ordnance department at Watertown, N. Y., or elsewhere at \$3,000 a year; assistant designing engineer, male, to fill a vacancy at the Naval Ordnance Plant, South Charleston, W. Va., or elsewhere at \$9.20 per day; master computer, \$1,800 to \$2,400 a year; computer, grade I, \$1,400 to \$1,800 a year; computer, grade II, from \$900 to \$1,400 a year. The examinations for computer are for male and female, for duty at various proving grounds. Applicants should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, or to the secretary of the United States Civil Service Bureau at the nearest custom house.

New Rotary Surface Grinders

The rotary surface grinding machine illustrated is manufactured in two sizes with an 8-in. and 12-in. chuck, by the Heald Machine Co., Worcester, Mass. The wheel slide has a flat and V way to provide for alignment, and bearing surfaces are protected from grit and dirt. A downward pull of the spindle belt has been incorporated in the design for the purpose of adding to the rigidity.

The wheel guard is made separate from the wheel slide, and has the back face finished off to fit a finished surface on the wheel slide. This design makes it possible to use a larger wheel if desired. The wheel spindle is large in diameter and is mounted in a straight, plain, adjustable bearing at the grinding wheel end. Adjustments for this bearing can be made through a hole in the top of the wheel slide. This is the only adjustment required as the rear end of the spindle is mounted on ball bearings. A large sight feed oiler lubricates the front bearing.

The main drive bracket receives the power from the main line by tight and loose pulleys and transmits it directly by belt to the main speed box, wheel spindle, and pump. The guard for the tight and loose pulleys is

guard and connections. A swivel joint in the distributing nozzle enables the operator to direct the flow at any desired point.

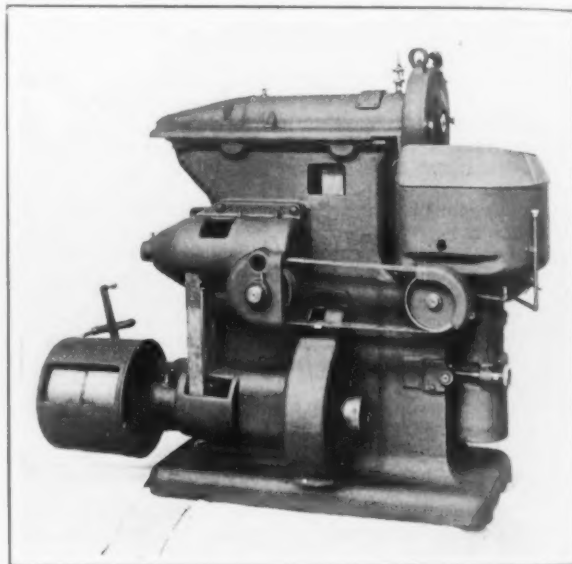
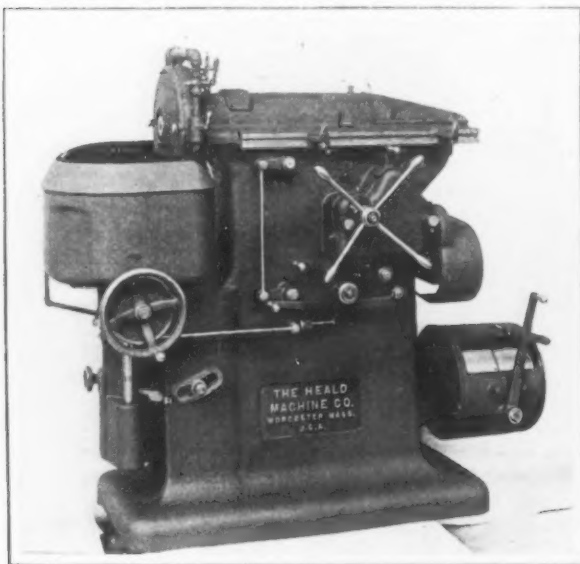
For motor drive the motor is placed on the floor, wall or ceiling and belted directly to the main drive pulley.

Peck, Stow & Wilcox Co. Anniversary

On Aug. 29 and 30 the Peck, Stow & Wilcox Co., Southington, Conn., will lead in a celebration of its hundredth anniversary and will especially honor returned soldiers. The company will unveil a memorial in stone and bronze, to serve as the base of a tall flag pole and flag. On the bronze tablets on the four sides will be the names of all the men and boys who went from Southington in all of the wars in which America fought.

Gov. Marcus H. Holcomb of Connecticut, a member of the company, is on the executive committee for the celebration, and Secretary of War Baker is to be a guest of honor.

There will be an historical pageant, depicting the patriotic and industrial development of Southington and Connecticut, a community picnic, a military parade,



This Rotary Surface Grinder Is Made with a 12-In. or 8-In. Magnetic Chuck. The 12-in. machine has a chuck with a face diameter of 13 $\frac{3}{4}$ in., a 12-in. grinding wheel with 1 $\frac{1}{4}$ -in. face; the smallest diameter grinding wheel which may be used is 7 $\frac{1}{2}$ in. The 8-in. machine has a chuck with a face diameter of 9 $\frac{1}{4}$ in., a 10-in. grinding wheel with 1-in. face; the smallest diameter grinding wheel which may be used is 6 $\frac{1}{2}$ in.

adjustable so that the openings can be lined up for the belt. The shifter level is arranged with a spring plunger which locks it in place in the off or on position.

The main speed box which is situated on the rear of the machine furnishes power to the wheel slide by a three-step cone, and three speeds to the chuck through a bank of gears. The speeds of wheel slide and chuck are independent of each other thus to allow latitude in speeds and feeds. The speeds to the chuck are controlled by a pull rod on the front of the machine.

The grinder is equipped with magnetic chucks, but three-jaw chucks or face plates with special fixtures may be substituted. The chuck spindle is driven by spiral gears one of which is mounted directly on the spindle. This spindle is mounted in a sleeve which has vertical adjustments. The upper portion of the spindle rests in a taper bearing, while the lower end is equipped with ball bearing. With this design it is emphasized that adjustment is not necessary as the wear is automatically taken up. The chuck bracket is adjustable to allow for the grinding of concave and convex surfaces up to an angle of 10 deg.

The feed to the chuck is by a hand wheel and vertical screw through a nut on the spindle sleeve. The machines are also equipped with an automatic vertical adjustment to the chuck which will feed from 0.0005 to 0.0003 in at each end of the wheel traverse.

The water equipment includes pump, tank, water-

industrial exhibition, and a Peck, Stow & Wilcox banquet. In 1819 "Peck's patent" was granted for a tie folding machine. Seth Peck headed the first organization. The company now makes mechanics' hand tools, tinsmiths' and sheet metal workers' tools and machines, builders' and general hardware.

Special Benefits to Doehler Employees

An employees' association, modeled along the lines of the plans for industrial democracy adopted by the Standard Oil Co. in Colorado, the General Electric Co. and others, has been put into effect by the Doehler Die Casting Co., Brooklyn, N. Y., which has formed the employees into the Doehler Die Casting Employees' Association.

At the first meeting of the employees special benefits for the employees in case of sickness or accident, in addition to the usual benefits provided by the New York workmen's compensation law, were formulated. They call for (1) \$12 per week in case of sickness on payment of 50c. per month; \$6 per week for sickness on payment of 25c. per month; (2) life insurance policy of not less than \$500 automatically increased \$100 per year up to \$2,000, regardless of physical examination, upon receiving membership in the association; (3) free medical attention at home; (4) similar medical attention for the beneficiary's family.

Labor Problems Worry the Administration

Strikes and Riots Cause Anxiety at the National Capital—Secretary Redfield at Cleveland Discusses Conditions in Europe and the United States

WASHINGTON, June 11.—Labor problems are again worrying the Administration leaders in Washington, although they declare that actual unemployment throughout the country is really growing less. Various strike movements, such as that of the telegraphers, and the riots in Toledo, however, have alarmed them, because they fear that the more conservative labor leaders are losing some of their control. This has been a noticeable trend for some time, and has given particular interest to the Atlantic City convention of the American Federation of Labor. The cleavage between Postmaster General Burleson and Secretary Wilson of the Department of Labor over the rights of union organization has prevented the Cabinet from taking a definite stand, and it is doubtful whether anything definite can be expected before the return of President Wilson from France.

Congress also has had a lot of other things on its calendar, and although the Committee on Labor in each house is beginning to discuss its session programs, nothing definite has developed there. It is certain that there will be a vigorous fight over the demand of the Department of Labor for a national employment service. A bill framed by the department in accordance with the views of the union labor leaders has been introduced in both houses, but there are indications that its final form will take out of it much of the Governmental machinery with which it is now planned to endow such a service. Even Chairman Kenyon of the Senate Labor Committee is reported to oppose making more than a clearing house of the proposed employment service, leaving the actual machinery to the States themselves.

The Dynamite Outrages

The latest dynamite outrages, with their accompanying Bolshevik propaganda, have alarmed many of the leaders in Washington, and have emphasized the need for more careful consideration of this phase of our present reconstruction needs. There seems little question that the anarchistic agitators are making use of all industrial unrest to strengthen their cause, and leaders in both parties in Washington are looking for methods of combatting this. Several propositions have been made for new industrial commissions to take up the problem of bringing labor and capital together, but so far these have failed, chiefly because of the difficulty of getting both sides properly represented, without putting the balance of power into the hands of governmentally appointed officials. It is feared that the latter would be sure to lean too far toward the labor union side of each question, thus tending to make the results of the commission's work of less value.

The United States Chamber of Commerce has tried to work out an industrial program and has submitted a series of principles to its membership for a vote. This will be counted next week, and it is likely that the chamber's proposals will be adopted by its members. Even here, however, there has been considerable opposition by the National Association of Manufacturers, which declared these principles so vague as to lead only to new difficulties, and asked their withdrawal. Other organizations followed this lead, but the directors of the chamber have declined to withdraw the referendum.

Secretary Redfield's Speech

Something of the views of the Administration is reflected in the speech delivered today in Cleveland, before the Cleveland Advertising Club, by Secretary Redfield of the Department of Commerce. In that address, he pointed out the divergence of views between labor

and capital as one of the most important items in our present program of reconstruction.

"The problems with which the United States has had to deal," he said, "differ both in kind and degree from those which trouble Europe. The great industrial districts of Belgium and northern France were not only overrun but ravaged. In some parts the industrial buildings were destroyed; the larger part of the equipment was stolen; in complete degrees the materials and finished products were taken. The manufacturer of those countries, as he goes back to the site where his industry once flourished, finds no materials with which to work, no stocks from whose sale he may recoup his weakened finances, sometimes no machinery with which to work, sometimes no factory to contain his machinery. Let us suppose, however, that he is so fortunate as to have buildings and equipment ready to his hand, or that in the few months that have passed since military operations ended, he has been able in one or another way to procure them—how shall he get to work? Materials are not available. Credits are not sufficient. His force has been broken up; many of his workmen slain or maimed; others dispersed. Here is a task of true reconstruction, physical rehabilitation. Patiently he must find means for credit, secure materials, reorganize his force, hunt up former customers, restore old avenues of trade, and he will do well if he is fairly running on his new course by the time a year has elapsed from the armistice. It is likely to be two full years before anything like normal conditions return.

Conditions in Great Britain

"The manufacturer in Great Britain is not in quite so hard a case, for his factory is physically intact. It may, indeed, have been made over for war purposes and require renewal and rearrangement ere it can readily serve the needs of peace. His plant may have been diverted from its original purpose and he may have been caused to specialize in lines with which before the war he was unfamiliar. He may have the task of rearrangement—restoration—rather than that of physical reconstruction. He will find difficulty, too, in obtaining a supply of raw materials, not so serious as his brethren across the Channel, perhaps, but will still find it necessary to pay prices higher than any of which he ever dreamed for the material he needs.

"As all these manufacturers, however, look out into the New World, they find one change so radical that it alters their entire relations to the commerce, whether domestic or foreign, of which they are a part. This is the extraordinary advance in wages. From German sources comes the statement that labor costs in that country have multiplied by three and fuel costs by six. This is, of course, measured in their depreciated currency; but that very depreciation makes it doubly difficult for them to procure their supplies of raw materials save at onerous prices. From France we are informed that labor costs have multiplied 2.7 times and that material costs are multiplied by three. In Great Britain the wages of seamen are substantially the same as our own, and there is stern resistance on the part of English mechanics and factory operatives generally toward any diminution of wages, which are far higher than have ever been paid since the factory system began. It may seem strange, but it is true, that there is no apparent movement on the part of British manufacturers to insist upon any reduction of the present wage. It appears to have dawned upon the minds of farseeing men in Great Britain that for a long time past British industry has underpaid and underdressed and underhoused its working people, and the

truth begins to appear that such a course, however advantageous it may seem to be in an individual factory or on the surface of things, is, when made a general practice, in time destructive of the nation's competing power. England is learning the lesson that others need to learn, that in such respects, as in many others, cheapness and economy are not identical, but may be hostile one to the other. Strong men in British finance now speak in what seem to us familiar phrases of adjusting themselves to the advance in wages by better methods, by automatic machinery, by standardization, and by the application of all the principles of quantity production with which industry in the United States is so familiar.

"English labor since the war, while standing firmly for the new position it has gained, has rejected violence, and we may fairly expect that the British genius for compromise and the wide opportunity that the great British Empire offers for enterprise and progress will see her steadily through the present trying days.

Is This Country Drifting?

"What, however, do we find in this country? Are we drifting; and, if so, whither? What is the characteristic of the flowing stream of industrial life in America? Organized labor during the war took and held upon the whole a finely patriotic position. Has it ceased to be patriotic today? The employers, the leaders of industry, of this country, took, upon the whole, during the war a finely patriotic position. Are they less patriotic today? Have they relaxed their nation-wide vision, put on the spectacles of near sight, and can they see no further now than within their office walls, or is their vision confined to the limits of their own factories? We have strikes and we have bombs. Are these symptoms of revolution? Did the soviet, which had a brief, inglorious career at Seattle, represent the serious aspiration and purpose of any considerable portion or element of our labor? What lies behind the complaints as to our social structure which pour from certain of our weekly press? What are the deep, underlying forces in the life of labor? What are the ultimate purposes in the mind of capital? It has been said, and well said, that that nation will prosper most and quickest in which the relations between labor and capital are most equitable and most promptly settled. What progress are we making thitherward? We do not lack in the United States the leader of capital who opens his mouth only to put his foot in it, to show that he is still lingering among the flesh pots of Egypt, is wandering in the wilderness, and has made no progress toward the promised land. We do not lack, at the opposite extreme, the man who speaks 'plain words,' as he calls them, in which he says the social structure here in America is so adverse to the good of the toiler that no course is possible save to destroy it and that social war and that alone is the remedy; that the alleged capitalistic classes sit in oppression upon the vast mass of mankind and hold them down that they may fatten at their cost; that the door of opportunity is closed to the humble and no one extends a helping hand to lift them up; that there is no such thing as progress out of poverty; and that our evolution, such as it is, is so slow and so cruel that it must needs be altered to revolution ere the average man will have his chance.

The Still, Small Voice

"We are not to mistake the noise of the bomb or the fire of the radical or the wind of the weekly editor for the voice of the American people. The American people speak naturally with the quietness of conscious strength. While on the surface of their life the demagogue may rant, and the anarchist may proclaim, and the extremist, whether for capital or labor, may shriek with equal futility, the thing we are to find, if we can, is what saith the still, small voice of America today concerning the great, basic facts of work and industry?

"I should like to see, and I believe America tends strongly to seeing, capital forget to dwell upon its legal and technical rights and begin to think upon its opportunities of leadership. I should like to see, and I believe we shall come to see, labor, waiving no rights,

recognize in candor the helpful spirit and earnest purpose of leaders of capital to meet them in a fair spirit of equity. I have been deeply impressed with the sense of justice that lay beneath the earnest purposes of labor leaders and I am convinced that if and when industry recognizes, as I think it is beginning better to recognize, the common fellowship that exists between them, we shall cease to worry as to whether labor unions are responsible before the law, whether they may sue or be sued, whether damages can be collected against them, and about other similar questions.

Unreasonable Men

"The thing I have in mind, translated into fact, means the absence of hard language which I have heard employers use and the equal absence of cursing that angry workmen have been tempted to employ, sometimes for just and sufficient cause. I have seen factories in which the men at the top, estimable, high-minded gentlemen, in almost every way doing their part as pillars of the state, yet had a chasm, a separation, between them and their men over which no spirit of cordial sympathy cast a bridge. They did not understand, and said they could not understand—but, I fear, did not fully try to understand—the attitude of their men toward them. I have seen two factories on opposite sides of the same street and in kindred lines in one of which there was discord and in the other peace. The difference did not lie in the men at the benches, but in the spirit of the men at the top and in the amount of human sympathy which that spirit showed. I have known workmen who offered their own funds to help their employer out of temporary financial distress and others under the same capitalistic system, be it observed, who were tempted to wreck their employers' property, and the difference lay in nothing visible but in the spirit with which the men were led, in the one case, and driven, in the other.

"Yet the progress of this Nation of ours in the world depends upon our unity of spirit, upon the recognition by men of their obligations one to another, their opportunities for service one to another, and not supremely upon the enforcing of their rights one over the other. I have heard leaders of organized labor speak with enthusiasm of the leadership in industry of a man of capital and have known them to select such for arbiters because of their confidence in their just judgment. What is it unless it be short vision and prejudice, and habit—to which we sometimes apply the fine title of conservatism—that annoys us when he who may have been the under-dog seeks his chance to rise? What is there to exasperate in the increase of a wage that does not exist in the addition to a salary? Theoretically we all deplore poverty, we all abhor fatigue. Why may we not sympathize with him who seeks to rise out of poverty and who seeks to shorten his day's work that he may have time in which to live? The struggle upward is here to stay. Is it not better for us not merely to sympathize with it, but to take part in it and help it along, else may we not have to face the prospect of a struggle to pull downward?"

O. F. S.

Bulletins on Health of Workers

WASHINGTON, June 10.—The Bureau of Labor Statistics has published as "Bulletin No. 249" the final report of the British Health of Munition Workers Committee. This report goes into exhaustive detail concerning the health of munition workers in the United Kingdom and presents an important series of conclusions concerning the methods for the prevention of sickness and accidents. The document should be of great value to the entire steel industry because a large proportion of the particulars dealt with belong to that industry.

The Bulletin was printed by the Department of Labor at the request of the Council of National Defense which directed the publication in the United States of the salient features of the work done by the special committee appointed by the British minister of munitions to investigate conditions affecting the health and welfare of workers.

The first Bulletin, No. 221, published in compliance

with this request contains documents, official and unofficial, dealing with hours, fatigue, occupational diseases, and the provisions of the munitions of war act relating to labor disputes and the restoration of trade-union conditions after the war. The second bulletin, No. 222, contains memoranda relating to welfare supervision and welfare work. The third Bulletin, No. 223, contains reprints of official and unofficial documents dealing with the employment of women and juveniles. The fourth bulletin, No. 230, includes the interim report of the Health of Munition Workers Committee on industrial efficiency and fatigue, which sets out the result of a number of investigations which have been made for the committee. The final report of the committee, Bulletin No. 249, gives a concise survey of the problems set forth in the various memoranda of the committee covered in the other bulletins.

"It is believed," says the Department of Commerce, "that these bulletins published at the request of the Council of National Defense will be of great service alike to employers and workers in this country because they give the experience of Great Britain in dealing with labor in the production of the largest quantity of munitions in the shortest space of time—an experience which offers many suggestions capable of practical application in the promotion of peace time industry."

Films in Safety Education

WASHINGTON, June 10.—The Working Conditions Service, Department of Labor, has issued a bulletin by Roy S. Bonsib, chief of the Division of Safety Engineering, to cover the work of that division. According to these statistics 88 per cent of the industrial accidents reported are due to the failure of the human element, and are not directly chargeable to machinery at all. Of the 38,000,000 working men and women in the United States, according to this report, 700,000 each year lose limbs or are laid up for an average of four weeks each, entailing a monetary loss to the wage earners of the nation aggregating at least \$50,000,000.

Mr. Bonsib believes it most important that workmen should understand clearly the hazards of the occupations in which they are engaged and how they may be avoided. Films and slides make a more effective presentation of the case than any speaker can offer. One large motor company has made a specialty for some time of showing a safety film to its men in groups of about 175.

Where films are shown Mr. Bonsib advises that the safety film be only one of a program. He suggests a comedy film to start the program, a safety film and a drama for the finale. One large company makes a specialty of noon-day films, with one industrial film weekly.

One Cause of Unrest

WASHINGTON, June 10.—There is an interesting industrial sermon in a statement issued by Charles T. Clayton, director of the United States Training Service, Department of Labor. He declares that one of the potent causes of unrest in America is the defective social management that leaves large numbers of workmen unfitted for skilled work when the skilled men needed for the jobs are not available. Recently Mr. Clayton says he found that a New England railroad company needed 156 railroad machinists, and an equal number of applicants was sent to the shops by the employment office to which the request came. Just three of the applicants proved qualified. "The heart-breaking thing about that instance," Mr. Clayton says, "is this—the man who examined those men has told me himself that in his judgment nearly all of the 153 he had in justice to turn down, by a very little bit of training could have been made fit to hold those jobs."

Improving Working Conditions

An outline of the services extended to employers by the Working Conditions Service, United States Department of Labor, is given in a recent pamphlet entitled, "Treatment of Industrial Problems by Constructive Methods," which is accompanied by a wall chart.

The Service maintains three divisions: Industrial hygiene and medicine, labor administration and safety engineering. The aim of the first is to improve the health and efficiency of industrial workers and it undertakes to promote industrial hygiene, carrying on research and education. The second is to open an unobstructed channel through which the best employment policies and practices of the country may pass into universal usage and it maintains information, standardization and consulting service. The third is to reduce injury in industry and it carries on a clearing house of ideas, standardization and education. In connection with the whole is a research branch which directs intensive studies into special hazards, uncovers problems that require the study of specialists and devises engineering plans to correct unsafe and unhygienic conditions. The Service has six district offices open for consultation.

In the World of Labor

The General Electric Co. has announced a reduction of working hours from 52 to 48 hr. per week at the Lynn, Mass., plant, the new schedule going into effect Monday of this week. The reduction of hours will be without loss of pay and involves about 18,000 persons.

Unskilled men to the number of 600 went on strike June 4 at the Seymour Mfg. Co.'s plant, Seymour, Conn., for 52 cents an hour for an 8-hr. day.

A bill to compel aliens employed in the factories of Massachusetts to learn to speak the English language was reported by the Committee on Education at the State House in Boston on June 4. It provides that on and after Jan. 1, 1921, no person more than 21 and less than 40 years of age, except a married woman, shall be employed in any place employing more than 25 persons, unless such persons can read, speak and write the English language with proficiency equal to the fourth grade standard of elementary education, or unless such person attends for at least three hours in each of 40 weeks in each year a school or class approved by the school authorities of the city or town in which he or she is employed.

Employees of the Crane Co., Bridgeport, Conn., were last week informed that those who have been in the employ of the company for six months or longer, prior to Jan. 1, 1919, will receive each year a vacation of one week with pay. About 2200 employees will benefit by this rule, and receive vacations with pay during the present year.

The James E. Hunter Machine Co., North Adams, Mass., went on a 48-hr. week on June 9. This is a 7-hr. reduction of working time, but the readjustment will involve no reduction in the weekly wages and is a voluntary act on part of the employer.

Employees at the Mt. Morris, N. Y., works of the Robeson Cutlery Co., who walked out on strike June 2, following the action of workers at the Perry plant of the company, returned to the plant, for the most part, on June 4. No demands have been met, but it is said that officials of the company will confer with the workers and establish a definite arrangement. About 60 persons are employed.

The J. H. Williams Co. and the H. W. Hakes Mfg. Co., Millbury, Mass., manufacturers of textile bobbins, machinery, etc., have established a 52-hr. week at their plants, instead of 58 hr., as heretofore, making a 5-day week instead of 6. At the same time a 10 per cent increase in wages has been granted, giving employees the same amount for 52 hr. work as previously for 58 hr.

Employees at the shipyard of the American Shipbuilding Co., Welland, Ont., now out on strike, have refused the company's offer of a 44-hr. week, with 10 per cent advance in wages. It is said that the company will close the works rather than fully accede to the demands of the men.

After being closed for more than two months by a strike, the Logan Iron & Steel Co., Lewistown, Pa., has resumed operations. More than 700 employees were affected. Puddlers will receive \$10.25 per ton under the wage scale now in vogue.

Sheet Metal Jobbers Discuss Trade Problems

Improvement in Sheets and Tin Plate— Relations with Manufacturers—Very Gradual Readjustment in Prices Predicted

THE eighth annual meeting of the Metal Branch of the National Hardware Association, at the William Penn Hotel, Pittsburgh, on June 6 and 7, showed that a more hopeful sentiment has been developing in the sheet metal trade. The sessions were attended by 75 or more jobbers and manufacturers of sheets and tin plate and interest in the proceedings was keen. W. H. Donlevy, of Carter, Donlevy & Co., Philadelphia, is chairman of the section and George A. Fernley, Philadelphia, is secretary. In his opening address Mr. Donlevy spoke of the great work done in the war by the metal industries. The country is now in the transition period and the problems growing out of the changing over of industries from a war to a peace basis are being worked out. He referred to an expected shortage of labor in the fall and predicted that wages and prices of commodities would not be materially lower for some little time.

Trade Developments

From the report of the Metal Committee, which was presented by Chairman Donlevy, it appeared that 26 firms had applied for membership in the metal branch in the past year, and that the membership now includes nearly all the manufacturers and distributors of tin and terne plates and black and galvanized sheets. The following extracts represent the principal matters included in the report:

Since the cessation of the war, direct competition from the manufacturers seems to have increased to a considerable degree. Some of the mills which have not heretofore indulged in the practice of selling to both wholesale distributors and also to the customers of the latter have apparently changed their selling policy.

The necessity and efficiency of wholesalers was demonstrated and acknowledged by the Government during the war. The wholesale distributor is the selling agent of the manufacturer and should be so considered and protected. If the wholesaler, by carrying well assorted stocks located in all parts of the country, is able to handle the business more economically than the mill, he should be allowed to do so and is justly entitled to a profit for the services rendered.

The mills should not expect to sell to the wholesalers and then sell to the distributors' larger customers in good credit at the same price, allowing the distributor to serve those who are slow pay and to those who buy only in small quantities.

Under the control of the War Industries Board, the wholesale distributor was allowed a differential of 17 per cent on iron and steel products. This margin in the opinion of most of our members, allowed the distributor a fair, reasonable profit on warehouse shipments, and we believe the high cost of doing business makes it necessary that the distributor should continue to obtain an adequate differential. We have recently heard of destructive competition in several sections of the country by wholesalers. Such action is disastrous and no good reason can be assigned for it.

During the war many industries effected substantial economies by reducing the number of sizes and grades. Unfortunately, no steps were taken in this direction in the commodities handled by metal distributors. In accordance with instructions given at our last meeting, we have communicated with the manufacturers of terne plates, suggesting that the number of grades be reduced from eight to four. [A report was presented later to the convention showing that 104 jobbers had favored the elimination of four grades, all but 20 suggesting that 12, 20, 30 and 35 lb. plates be dropped. Three opposed any reduction in grades.—EDITOR.]

The advent of motor trucks has resulted in distributors making free deliveries from their warehouses into their surrounding territory for many miles and we fear this expensive form of delivery has not always been considered in fixing selling prices. It does not seem fair or equitable that the customer who calls with his team or truck at the warehouse, should be charged the same price as the customer who has

his goods delivered to his shop. In several sections of the country our members are collecting a regular charge for delivery, and we believe it would be beneficial if this practice could be extended throughout this country.

We are advised that an increased number of our members have adopted the practice of forwarding trade acceptances with their invoices. These members are enthusiastic over the results so far obtained and recommend the system to others.

Price Likely to Stay Up

Robert H. Treeman, president of the National Hardware Association, in extending greetings to the members, said it was generally realized that the present high wages would not come down very soon, and that there was more optimism regarding the general outlook for trade than has existed for some time. He did not feel that jobbers would run any great risk of declining prices, should they buy more freely and carry larger stocks than had been their custom recently.

Hon. A. C. Miller, member of the Federal Reserve Board, Washington, made an address on "The Present and Prospective Price Situation." He spoke very exhaustively on the economic readjustment of prices of steel and other commodities, here and in Europe. He said the war had interlocked the great business interests of this country with those of Europe, and that conditions as existing in the United States were of great importance to Europe, and would have much to do with rehabilitating the countries that were torn by war. He predicted that it would take from 10 to 15 years before European rehabilitation would be anywhere near complete. He pointed out that the main reason for the high prices ruling for steel and other products, also for food and wearing apparel, was the inflation of credits and currency all over the world. It is seven months since the armistice was signed, and yet prices have not declined materially. It would take some years to secure deflation of currency and credits, and also some years for digestion of Government bonds issued during the war. The United States must play an important part in European rehabilitation and must extend large lines of credit to European countries.

The whole world is in the grip of inflation of values. The war debts of the nine nations actively engaged in the world war are \$235,000,000,000, and the amount will be larger before it will start to be reduced. At present England is expending £6,000,000 daily for war expenses and to help out other countries. Wages, materials and foodstuffs will continue, with some fluctuations, to be high over the next three or four years, and after that period progress in readjustment may be more marked. The Bank of France, one of the strongest institutions in Europe, increased its circulation over 500 per cent in the war period, and it will be some years before the mark and the franc will get back to their face value. The United States has had less inflation than any other country, but there are still outstanding \$7,000,000,000 in credits on Liberty bonds, represented by bonds not yet paid for and by bonds the banks have not yet distributed. When these bonds are finally in the hands of investors, through the earning and saving of the amounts due on them, we shall begin to see a measure of deflation in prices in this country. He said that deflation in Europe would be slow and long drawn out. Railroads in Europe are greatly run down and it will take years to rehabilitate them. The annual productive capacity of the United States now is \$65,000,000,000, and this will materially increase. He predicted a heavy foreign trade from this country over the next 10 or 15 years, and concluded by saying that he believed the United States would

shortly enter upon an era of great prosperity that would continue for some years.

Reports on the Trade Situation

Louis Follet, president of the Standard Tin Plate Co., Canonsburg, Pa., made some comment on "The Situation in Coke Plate." Mr. Follet said that a few years ago it was the custom to use three pounds of tin to each base box of coke plate, but later a less amount was used, though it could be said that the distribution of the coating is now better than formerly. A great deal of attention has been paid by tin plate and steel manufacturers in the last few years to securing the highest quality of steel for making tin and terne plate, and the opinion now is that open hearth steel is better than Bessemer for tin plate. Manufacturers are doing all in their power to improve the quality of their product. At present the tin plate trade is slow, and the large consumers had heavy stocks of plate on hand when the year opened, but these they now have almost entirely used up. He predicted a heavier demand in the last half of the year.

Referring to the situation in galvanized sheets, E. Theodore Sproull, general manager of sales of the Trumbull Steel Co., Warren, Ohio, stated that in the past two or three weeks demand and outlook for galvanized sheets had improved very much, that at present galvanized sheet mills are running at 60 to 70 per cent of capacity, and recently some good contracts have been placed at regular prices.

E. J. Hayman, general sales manager of the Parkersburg Iron & Steel Co., Parkersburg, W. Va., reported the sheet business better than for some time. The consuming trade has largely come to the idea that prices on sheets will not be materially lower and is placing orders more freely.

F. O. Schoedinger, Columbus, Ohio, also reported better conditions in sheets and other materials in the last three or four weeks, and said that new building seems to have started, as their orders for building materials from contractors and other customers had increased very largely in the last month. He believed business will grow steadily better and that by fall there will be a demand for sheets and other products that will give the mills full work and the jobbers all the business they can readily handle.

J. D. Moore, a large jobber of Birmingham, Ala., said the best thing to do was to go ahead with business and not expect that prices will be materially lower. He advised jobbers to buy more freely, and have goods in stock when the trade wanted them. Every one should do all in his power to keep business going and forget as largely as possible any feeling that prices might decline. Similar sentiments were expressed by Quincy W. Wales, of Brown-Wales Co., Boston, and also by H. H. Rudd of George Worthington Co., Cleveland.

Differentials to Jobbers

There was a full discussion as to the necessity for continuing the differentials for warehouse shipment that prevailed during the war. This subject is in the hands of a committee, of which F. J. McNeive of W. F. Potts Son & Co., Inc., is chairman. In his report, Mr. McNeive said that the differentials recommended for the jobber during the war seemed very liberal at first glance. However, as the war went on, the expense of doing business increased very fast, and this with the reduced supply of steel available for the jobber made his margin really only a fair one long before the war closed. When the War Industries Board was dissolved on Jan. 1, the efforts to maintain the war differentials were successful only for a short time, when conditions became such that jobbers cut the differentials, not only on sheets, but on other products as well. While fully believing the war differentials should have been maintained, it seemed impossible, owing to severe competition of mills and from other sources, to do so. The jobbers do not believe they will ever again have the benefit of the large pre-war profits. For many years to come jobbers and manufacturers will have to pay heavy taxes, labor will remain high, and the cost of doing business will be heavy. In other words, jobbers have decided the new high price level is here to stay

for some time, and their work will be to educate consumers to this belief. Several other members took part in the discussion, and it was the opinion of all that strong efforts should be made to maintain as nearly as can be done the war differentials on sheets and other products.

On the question what differentials should be maintained for less than carload shipments from the mill, when sold to small buyers, the opinion expressed was that the differentials should be not less than \$2 per ton. The practice of some mills in selling small lots of sheets direct to consumers also came up and the secretary was ordered to communicate with mills said to have been following this practice, with a view to having them stop it.

A committee of three was appointed to confer with the National Association of Sheet and Tin Plate Manufacturers on protecting the jobber by giving him a lower price than is quoted to the ordinary consumer. It consists of F. O. Schoedinger, Columbus, Ohio; F. J. McNeive, of W. F. Potts Son & Co., Philadelphia, and J. G. Fuchs, of Bruce & Cook, New York. The committee will attend the meeting of the above association in Pittsburgh on June 20.

The Copper Market

Greenville Mellen, president Continuous Rolling Mills, Garwood, N. J., presented a thoughtful paper on conditions in the copper market. He took the position that a wider market and a greater demand for copper are immediately ahead and believed the situation would work toward higher prices. There was practically no demand for copper in normal lines of consumption during the war. The shutting off of war demand, therefore, left the industry with surplus stocks, and now the question was how long it would take for a reorganization of the entire industry so that the various units in their inter-connections may make the old points of contact between producers and consumers from original sources to ultimate outlets. The producers are not anxious to sacrifice already accumulated profits which were large in wartime. In relation to cotton at 30c. per lb., wheat at \$2.26 per bushel and to corn at \$1.75, and so on through the long list of commodities, the speaker considered copper is now selling too low by 10c. per lb. While the process of industrial restoration in Europe will be slow, the speaker was confident of a large ultimate demand for American copper.

Increase of Steel Capacity in Wartime

A. I. Findley, editor THE IRON AGE, addressed the convention on "The Effect of the War in Increasing the Iron and Steel Production of the United States and Allied and Enemy Countries." He gave some facts concerning the reduction in iron and steel capacity of Belgium and France due to the destructive work of the German army, and canvassed the possibilities of increased output in France due to the return of Alsace-Lorraine, also the probabilities of lessened production in Germany due to losses of iron ores as well as of blast furnace and steel capacity and to the wiping out for the time being and probably for a considerable future time of the German overseas export trade in iron and steel. It was shown that the United States contributed about three-fourths of the increase in ingot capacity in the world during the war period and that, putting the world's present capacity at 98,000,000 tons per year, assuming the rehabilitation of French and Belgian works, the United States, with 49,000,000 tons capacity, can now produce as much steel as all the rest of the world. The speaker pointed out that the world is fortunate in having half the total steel capacity in the hands of a nation with the ideals of the United States and its willingness to defend the liberties of weaker peoples. The new world can have no better guarantee of peace and of the permanence of its League of Nations.

Trade Propaganda

C. B. Nash of the Standard Sanitary Mfg. Co., Pittsburgh, spoke on price maintenance and business extension. He referred to the close relations that now exist between the makers of enameled sanitary ware and the master plumbers and said that a fund of \$50,000 is be-

ing raised by the sanitary ware manufacturers and the master plumbers to educate consumers to put high class sanitary fixtures in their homes. Strong efforts will be made to encourage farmers to install enameled sinks, lavatories and bathrooms in their homes.

S. H. Taylor of Merchant & Evans Co., Philadelphia, called attention to the failure of underwriters to recognize properly the superiority of tin roofing. He suggested that a fund be raised by adding five cents per box on each box of tin plate sold, and use the money in an advertising campaign to bring about a change in this matter.

Z. T. Hall of Hall & Carpenter, Philadelphia, suggested a national campaign to exploit the merits of roofing tin over the many forms of composition now on the market. Cases were cited where tin roofs, under proper care, had given good service for over 25 years, and were still in good condition.

The last subject discussed was the advisability of selling tin roofing with a guarantee as to wearing quality. John Follansbee of Follansbee Brothers Co., works at Follansbee, West Va., said that it had been the policy of his concern, in selling its terne plates, to guarantee them for 15 years when painted with pure linseed oil and Venetian red iron oxide and soldered with

rosin. Mr. Follansbee said they had been making this guarantee since 1905. An accurate calculation shows that during the period of nearly 15 years the cost of replacements was only $\frac{1}{4}$ of 1 per cent of the amount of terne plate sold. In the discussion that followed several jobbers stated that they could not sell plate with such a guarantee unless they received a similar guarantee from the manufacturers.

Frank K. Chew, editor of *Metal Worker, Plumber and Steam Fitter*, New York, in answering the question "Shall Tin Roofing Interests Be Left Unprotected?" urged the organization of a campaign by makers, distributors and users of roofing plates to counteract propaganda and to keep constantly before the public the merits of tin roofing.

E. A. Scott, editor of *Sheet Metal*, also spoke, urging manufacturers of terne plate to start a campaign at once for the purpose of educating the architect, the sheet metal worker and the home builder as to the superiority of terne plate roofing over composition roofing.

At a dinner and smoker given on Friday evening in the William Penn Hotel, George P. Early, special representative of the American Sheet & Tin Plate Co., Pittsburgh, made a highly humorous address on "Looking Backward," which had a very appreciative reception.

MIDVALE IMPROVEMENTS

Large Plant Additions—Pension System—Helping Employees to Buy Homes

The board of directors of the Midvale Steel & Ordnance Co. has authorized an extensive reconstruction program, for which approximately \$8,000,000 will be required. A large part of this amount will be expended at the blast furnaces and open hearth department of the Franklin plant of Cambria Steel Co. at Johnstown, Penn., in replacing worn-out equipment and modernizing the plant. The official announcement says:

"Other important items are as follows:

"Reconstruction of boiler houses and steam system generally.

"Additional heating facilities at plate mill.

"Replacing the present hospital for Cambria employees at Johnstown with a new hospital equipped with all modern improvements.

"At Nicetown—An electric furnace will be erected, and present bar mills rearranged for the efficient production of tool steel and other bar specialties.

"At Coatesville—The principal item will be the construction of a large plant for the special heat treatment and finishing of plates and other steel products.

"The board also authorized the establishing of a pension system for employees, which will become effective July 1, 1919.

"The directors and officers of the company firmly believe that the interests of the company are identical with those of the communities in which the various plants are located. They also believe that the ideal American community is one in which all, or at least a majority of the citizens own their own homes. In order to assist in bringing about this condition, a comprehensive plan was authorized, whereby employees will be materially assisted in the purchasing of homes. Under this plan, the company will advance 90 per cent of the total cost, and will extend payments over a maximum period of 12 years."

Discussing Coke Contracts

UNIONTOWN, PA., June 10.—Negotiations now in progress for contracts for the last half year overshadow all other developments in the Connellsville coke industry. So far as is known, no contracts have been closed and none of the negotiations have reached the point where a price has been suggested. Three classes of contracts seem to be in the air, one calling for delivery for six months, another contracting for three months and the third calling for monthly revision both as to price and tonnage. The first contract named is the one

most acceptable to the consumers, while the producers are partial to a monthly revision.

Inquiries are being received by local operators for tonnage upon contracts for the last half greater than delivered to the inquiring interests during the first half.

The manner in which the first half contracts worked out seem to make the operators partial to monthly revisions. They feel that the coke industry is on the upgrade and wish to take advantage of any upward trend in market conditions.

Lake Iron Ore Shipments in May

Iron-ore shipments from the Lake Superior region in May were nearly 25 per cent less than in May, 1918. The total last month was 6,615,341 gross tons as contrasted with 8,792,231 tons in May, 1918. This is a decrease of 2,176,890 tons or 24.75 per cent for May, this year. The comparative shipments by ports for May, 1918, and for the season were as follows in gross tons:

	May, 1918	May, 1919	To June 1, 1918	To June 1, 1919
Escanaba	655,495	583,463	655,495	654,880
Marquette	495,043	151,749	505,751	151,749
Ashland	898,148	669,647	898,147	817,007
Superior	2,088,029	1,250,536	2,187,591	1,352,267
Duluth	3,055,083	2,957,338	3,112,074	3,751,387
Two Harbors ..	1,600,434	1,002,608	1,669,043	1,300,292
Total	8,792,231	6,615,341	9,028,101	8,027,580
Decrease from previous year		2,508,619	2,176,890	2,532,957

The decrease to June 1, this year, is 11.08 per cent as compared with the same date in 1918, or 1,000,521 tons. The Duluth and Superior percentage of the total to June 1, this year, was 63.57 per cent against 58.70 per cent last year. In 1917 this was only 48.81 per cent of the total. The Escanaba proportion thus was 8.16 per cent of the total as compared with 7.29 per cent last year. Duluth showed an increase over last year but Two Harbors a decrease.

Proposed New Orleans Iron Plant

In regard to the report that a rolling mill is to be established in New Orleans, THE IRON AGE is informed by Howard Egleston, in charge of the Industrial Bureau of the New Orleans Association of Commerce, that a skeleton organization has been formed to establish in the near future a rolling mill for the purpose of utilizing the large quantity of scrap iron which accumulates in New Orleans, manufacturing merchant bar iron. Promoters are endeavoring to find someone who has had experience in this line of business to take charge of the new enterprise. The necessary capital is promised, and is expected to be limited to \$500,000 at first.

PERSONAL

M. J. Scammell, who for about seven years was assistant general manager of the Sparrows Point, Md., plant of the Bethlehem Steel Co., has resigned that position to become effective immediately. His successor has not been appointed. Mr. Scammell first became connected with the plant in 1912, when he was made superintendent of blast furnaces. When the reorganization took place he was made general superintendent of the entire steel plant and later was appointed assistant general manager.



M. J. SCAMMELL

Benjamin H. Gilpin, formerly chief inspector of all the plants of the Wright-Martin Aircraft Corporation, New Brunswick, N. J., has become chief inspector with the Remington Typewriter Co. at the Ilion, N. Y., plant.

R. A. Macdonald has joined the selling staff of the Smiley Steel Co., 111 Broadway, New York, having been formerly with the Staten Island Chemical Co.

Arthur M. Long has been appointed assistant general manager of sales, Trumbull Steel Co., Warren, Ohio, succeeding Paul Wick, resigned, effective June 1. Mr. Long was associated with Jones & Laughlin Steel Co. in its Chicago sales office, for a number of years, until November, 1917, when he joined the sales organization of the Trumbull company.

M. V. Dreyspool, formerly export manager steel division, Josef F. A. Comstedt and Spartan Products Co., Inc., New York, has become general manager of sales, Rowson, Drew & Clydesdale, Inc., in association with W. J. Crouch Co., Inc., New York. His business career began in 1900 with the Central of Georgia Railway Co., at Columbus, Ga.; three years later he joined the purchasing department of the New York Central Railroad, and in 1905 he became the New York representative of the Phoenix Iron Co. In 1910 he entered the steel export field, visiting all important American steel mills from coast to coast.

George H. Allen, general manager American Brass Co., Kenosha, Wis., has been promoted to the position of general western manager, in charge of works at Buffalo, and Kenosha, and the five general offices at Chicago, Cleveland, Pittsburgh, St. Louis and Cincinnati. Mr. Allen will maintain headquarters at Kenosha, but will divide his time between Buffalo and Kenosha.

William Bangser has resigned as manager of the American Electric Steel Co., York, Pa.

F. W. McIntyre, for the past 16 years with the Niles-Bement-Pond Co., Boston and Chicago, has been appointed sales manager of the Becker Milling Machine Co., Hyde Park, Boston, Mass.

President Lucius J. Knowles, Crompton & Knowles Loom Works, Worcester, Mass., and President Edwin H. Marble, Curtis & Marble Machine Co., Worcester, Mass., have been appointed members of the committee on textile machinery, National Association of Cotton Manufacturers. B. H. Bristow Draper, Draper Corporation, Hopedale, Mass., is chairman of this committee.

J. W. Spensley has been appointed to represent the Champion Engineering Co. at Kenton, Ohio, in the New York territory. Mr. Spensley, who has had several years' experience as a crane sales engineer, has opened a sales and service office at room 1001, Singer Building, 149 Broadway, New York.

The Standard Oil Co. of New Jersey, announces the retirement of N. W. Porter as its purchasing agent.

Mr. Porter has been in the service of the company for 33 years, and retires on account of ill health. He has been succeeded by W. N. Cottrell, who has been with the company 17 years.

O. D. Conover, formerly vice-president and chief engineer of the T. W. Price Engineering Co., New York and Chicago, and production manager of the Ludlum Electric Furnace Corporation, has resigned to take the position of production and sales engineer on foundries and steel plants of the Austin Co., Cleveland. Mr. Conover has had broad experience as engineer in charge of the design and construction of a large number of steel plants, foundries, electric furnaces and other equipment both in this country and abroad. One operation on which he served as resident engineer for the T. W. Price Engineering Co. was the plant of the Ludlum Steel Corporation at Watervliet, N. Y. The plant was built by the Austin Co. Mr. Conover's headquarters will be at the Cleveland office of the Austin Co.

C. H. Ruder, formerly with the Berger Mfg. Co., Canton, Ohio, has been appointed district sales manager of the San Francisco sales office of the Canton Sheet Metal Co., Canton.

T. L. Lewis, general sales manager A. M. Byers Co., Inc., Pittsburgh, manufacturer of wrought iron pipe, has resigned, effective July 1. The position has not yet been filled.

A. W. Wadsworth has been made manager of the Pomeroy Machine Co., Pomeroy, Ohio.

M. H. Jones resigned his position recently as assistant manager of the Philadelphia district for the Westinghouse Electric & Mfg. Co., East Pittsburgh, to become sales manager of the Standard Electric & Elevator Co., Baltimore.

Preston Belvin has been appointed district sales agent at Pittsburgh for the International Oxygen Co., Newark, N. J.

E. A. MacDonald, who recently resigned as assistant secretary of the Savage Arms Corporation, Sharon, Pa., to become secretary, treasurer and a director of the Standard Tank Car Co., Sharon, recently was tendered a farewell reception by employees of the former corporation, who presented him a Masonic emblem ring.

James A. Farrell, president of the United States Steel Corporation, has accepted an invitation to address the Pittsburgh Chamber of Commerce on "American Participation in the Field of Foreign Trade." The exact date on which Mr. Farrell will deliver his address will be fixed later.

Frederic Meron, consulting engineer, New York, who came to this country from Belgium about four years ago, will sail for France on June 28 to install some machinery in a factory to manufacture twist drills.

Lieut. Clyde E. T. Tousley has returned to the Trumbull Steel Co., Warren, Ohio, after extended service in France and Belgium as adjutant, 136th Machine Gun Battalion. Mr. Tousley has been placed in charge of sales extension.

Paul Theis, former chief inspector with the Bijur Motor Lighting Co., Hoboken, N. J., became general manager of the Fischer Spring Co., Brooklyn, N. Y., on June 2.

E. G. Buckwell, secretary and manager of sales the Cleveland Twist Drill Co., Cleveland, sailed June 12 for a three or four months' tour of Europe for the investigation of trade conditions throughout England and the Continent.

A. C. Larsen, representing Hans Schourup, Ltd., Aarhus, Denmark, has recently arrived in this country and has opened a purchasing office at 51 East Forty-second Street, New York, to purchase hardware, machine tools, machinery metals, steel packings and beltines for his firm, who are large jobbers of these items, with branches throughout Denmark.

Prof. John R. Allen, who has resigned as dean of the college of engineering and architecture, University of Minnesota, assumes his new duties as director of

the bureau of research of the American Society of Heating and Ventilating Engineers on Aug. 1. This bureau is operated in cooperation with the United States Bureau of Mines at Pittsburgh and is supported by voluntary contributions from members of the American Society of Heating and Ventilating Engineers and manufacturers largely of apparatus used in heating and ventilating installations. The plan is to spend not less than \$15,000 a year and probably at least \$25,000. The subscriptions have been taken on the basis of an annual amount for five years.

F. E. Haller, formerly with the Vulcan Products Co., New York, has joined the staff of the steel export division of the Spartan Products Co., Inc., 120 Broadway, New York.

The Edison Storage Battery Co., Orange, N. J., announces the election of Maj. Charles E. Sholes as vice-president, director and general sales manager, succeeding Harrison G. Thompson, who has resigned to organize and conduct the Transportation Engineering Corporation of New York. Major Sholes has been identified with the construction, operation and management of chemical industries. In the war he served as major in ordnance, first as chief of the chemical branch, which attended procurements of platinum, cotton linters, alcohol, acids, etc., and as army representative before the War Industries Board. He was subsequently made contracting officer for the United States on the staff of Colonel La Mont, and retains his rank in the Officers' Reserve Corps.

In addition to the position of assistant secretary Pulaski Iron Co., Harry C. Greifzu has been elected assistant treasurer by the board of directors.

Elliott H. Whitlock, consulting engineer, Cleveland, and former president of the Cleveland Engineering Society, returned home last week after two years' service in France. He entered the army as a major and returned with the rank of lieutenant-colonel.

George Schuhmann, vice-president and general manager of the Reading Iron Co., Reading, Pa., has been confined to his home by illness for a number of weeks.

Emile Houbaer, engineer of the famous Cockerill works at Seraing, Belgium, is now in the United States visiting a number of steel plants. In THE IRON AGE of June 5, an article appeared giving details of the destructive work wrought by the German army of occupation at the Cockerill works. Illustrations showing the extent and character of the destruction also appeared in THE IRON AGE of April 10.

J. M. Sias, of the iron ore department of the United States Steel Corporation, New York, returned recently from a five months' stay in Brazil.

At a recent meeting of the directors of the Vulcan Iron Works, George Nicholson and Frederick O. Smith were elected directors of the company. Both have been connected with the company for many years. They are residents of Wilkes-Barre, Pa., and are connected with various industrial and banking institutions as officers and directors.

William P. Mullane, formerly of Youngstown, Ohio, has been made general manager of the Sligo Iron & Steel Co., at Connellsville, Pa., operated as a unit of the Federal Export Co., whose main offices are in New York. Mr. Mullane was advanced from superintendent.

W. B. Wallis, vice-president W. E. Moore & Co., consulting steel engineers, Pittsburgh, has sailed for Europe on an extended business trip. The firm has received a call for electric furnaces built under the Moore patents, which require his personal attention at the large industrial centers of the leading Western European countries.

W. G. Balph has been appointed manager of the safety switch section of the Westinghouse Krantz Factory, Brooklyn. Prior to working as salesman in the New York office, Mr. Balph was head of the fan motor division, with offices at East Pittsburgh.

OBITUARY

DAVID THOMAS RICHARDS, whose death at a hospital in New York where he was undergoing treatment for appendicitis was briefly mentioned in THE IRON AGE of May 22 was born in Youngstown, Ohio, in 1870. His early education was directed toward mastering telegraphy, but realizing the limitations of this vocation he took a short business college course and obtained a book-keeping position in Chattanooga, Tenn. This step led him into the foundry industry a few years later when he became book-keeper for the Chattanooga Pipe & Foundry Co. In 1899, he accepted a position with the Chattanooga Implement & Mfg. Co. and was elected secretary and treasurer. Eighteen years ago, he was made treasurer of the Hill & Griffith Co., Cincinnati, manufacturer of foundry equipment and supplies, and in 1913 he was elected president of the company, a position which he held until his death. Mr. Richards enjoyed an extensive acquaintance in the foundry and allied industries, and his sense of fairness, kindness and consideration drew to him a great number of friends.

CHARLES M. RUSSELL, a prominent manufacturer of Massillon, Ohio, died suddenly May 28 of apoplexy, aged 67 years. He was son of Joseph K. Russell, one of seven brothers who founded Russell & Co., manufacturers of agricultural implements. He served as secretary of Russell & Co. from its formation in 1878 until 1901 when the company was reorganized and incorporated as the Russell & Co. At that time he became vice-president and he served as president from 1912 to 1916 when he severed his connection. In 1910 he took over the direction of the affairs of the Massillon Iron & Steel Co., and continued active with that company until his death. He was also president of the Standard Horse Shoe & Nail Co., New Brighton, Pa. He was very actively identified with philanthropic work in Massillon.

BENJAMIN SEBASTIAN, 66 years old, founder of the Sebastian Lathe Co., Covington, Ky., died at his home in Cincinnati, June 5. He suffered a stroke of paralysis several months ago after returning from a visit to Florida, and had been in ill health ever since. He was a lathe manufacturer in Covington for more than 40 years and retired from active business three years ago. He was a member of the National Machine Tool Builders' Association and had served two terms as an officer of the Cincinnati branch, the National Metal Trades Association, as secretary one year and treasurer the following year. His son-in-law, E. E. Stokes, has been head of the Sebastian Lathe Co. ever since its founder retired, and will continue under the same name.

HOMER WRIGHT, aged 87, a pioneer manufacturer of Pittsburgh, died at his home in that city on Tuesday, June 3. He established the firm of Collins & Wright in 1853, and was identified with it until his death.

WILLIAM BALDWIN HOUGH, of the Metal Building Materials Co., Chicago, died of heart disease May 29 in Detroit, aged 41. He was graduated from the Massachusetts Institute of Technology in 1900. He belonged to many clubs.

Some hints as to the importance of aerial photography in peacetime are given in appeals of the director of air service, War Department, Washington, for more recruits to enter the service. Uses enumerated are: For making better maps, for photographing and surveying inaccessible areas, obtaining comprehensive views of great construction projects and watching the progress of the work, for studying stream and coast lines, railways and highways, and locating uncharted sand bars and other dangers to navigation. Those who wish to fly and can make good photographs from the air may be placed on flying status and receive an increase of 50 per cent in their pay, thus ranging from \$45 for the private to \$121.50 monthly for the master electrician. Recruits will be sent eventually to the Langley Field, Hampton, Va., for instruction in photography. Opportunity for travel is emphasized.

DAYLIGHT SAVING IMPERILED

Friends of Calder Act Not as Active as Those Who Favor Repeal

WASHINGTON, June 10—Although the industries of the country are interested in the daylight saving law, they seem to have paid insufficient attention to the campaign that has been carried on for repeal of that measure. On June 6 the House Interstate and Foreign Commerce Committee voted to report a resolution repealing daylight saving for the summer of 1920. By this resolution the committee will force action before the opposition was greatly strengthened. It is predicted that the resolution will be adopted by the House by a two-thirds majority and by a fair majority in the Senate. Several earlier attempts to repeal the measure failed through parliamentary tactics. The first of these was a rider on the agricultural appropriation bill in the closing days of the Sixty-fifth Congress. That measure was killed by the general filibuster which ended the old Congress.

The same rider was again attached to the agricultural appropriation bill, but it was thrown overboard on a point of order against inserting new legislation in an appropriation measure. An attempt was made to secure a special rule from the Committee on Rules of the House, which would override this point of order. That, however, was also futile. The Committee on Rules took the position that the matter should be taken up by the Interstate Commerce Committee, which had before it 28 bills intended to repeal the daylight saving law.

As a result, the Interstate Commerce Committee held immediate hearings, which developed the fact that only the National Grange, representing the farmers, was opposed to the daylight saving plan. The American Federation of Labor sent a representative, Henry Sterling, who insisted that organized labor was solidly in favor of daylight saving. He insisted that the Calder act worked to the disadvantage of the farmer only, whereas a million of men, women and children in the factories, stores and offices found the daylight saving law an opportunity for increased recreation.

Sydney M. Colgate, a manufacturer, appeared in behalf of the International Daylight Association, to protest against repeal of the law. "We prefer to call it a system of 'daylight living' rather than 'daylight saving,'" said Mr. Colgate, "for it gets the people out of doors, and keeps them happier and healthier."

Mr. Colgate also emphasized his conviction that the extra morning hour in the factories in place of the hot afternoon hour, had greatly increased the efficiency of labor.

Worcester's Housing Plan Developing

The project of Worcester, Mass., manufacturers to organize a company to build well constructed tenement houses and sell them on easy terms to workers, thus relieving the scarcity of residence property in the city, took definite form at a meeting held at the Worcester Club, June 5, when the Worcester Housing Corporation was formed with a paid-in capital stock of \$200,000. The officers elected were: President, George N. Jeppson, works manager Norton Co.; vice-president, Harry W. Goddard, president and treasurer Spencer Wire Co.; clerk, Chester T. Reed, secretary Reed & Prince Mfg. Co.; treasurer, Albert S. Heywood, president Heywood Boot & Shoe Co.; directors, the officers and Frank H. Willard, assistant general manager Graton & Knight Mfg. Co.; Louis H. Buckley, assistant general manager United States Envelope Co.; Paul B. Morgan, president and treasurer Morgan Construction Co.; Lucius J. Knowles, president Crompton & Knowles Loom Works; and Harry G. Stoddard, vice-president and general manager Wyman & Gordon Co.

The stockholders number about 30 manufacturing firms of Worcester. The subscriptions far exceeded the amount of capital stock decided upon; in fact, \$500,000 could have been obtained at the meeting, but it

was thought best to begin on a basis of 50 houses, each of which will have three apartments of five rooms each, and \$200,000 in conjunction with assistance from the savings banks, is ample for that number, including the land. M. F. Reidy, a Worcester real estate man, who has studied the housing question, was elected general manager.

Tool Builders Ask Protection Abroad

Machine-tool builders of Cincinnati are making protest against the proposed policy of the Government in dumping surplus machine tools on foreign markets. The following telegram of protest, signed by twenty machine-tool builders, has been sent to Ohio senators and congressmen:

"Please do what you can to prevent dumping of Government machine tools on foreign markets, as it will seriously affect every tool plant in Cincinnati and the country at large. Truck manufacturers stopped this, why can't we? If surplus machines must be disposed of, why not arrange that Germany and Austria absorb them in their initial requisitions?"

Robert S. Alter, vice-president and export manager American Tool Works Co. and president of the Foreign Trade Department of the Cincinnati Chamber of Commerce, has been active in the fight against the proposed plan, to which he called attention at the recent convention of the machine-tool builders. A letter he received from abroad says, in part:

"Needless to say, we are considerably worried on this matter, and we quite thought that this question of disposing of the tools which the American manufacturers sold to their Government had been settled at the last convention and that they had arranged not to dispose of any of these machines, but were going to turn them back to the various manufacturers from whom they had purchased them, to be disposed of by them, so that there would not be any swamping of the market.

"I have been back here (Belgium) about two weeks, and we are absolutely overwhelmed with inquiries, although we do not think the manufacturers in this country are actually purchasing, but are getting all this information together and waiting the results of the peace conference."

Encouraging Demand for Finished Products

YOUNGSTOWN, OHIO, June 10—A well-sustained and encouraging demand for finished steel products has produced a feeling of optimism in the Mahoning valley. One company has taken an order for 2000 tons of plates which will go into the construction of oil-storage tanks. There is a heavy demand from oil-country consumers for lap-weld pipe and wrought pipe mills are running practically full. One maker has received orders enough to keep his mills running to the end of the third quarter. Contracts are being placed by buyers for substantial tonnages. While the demand for butt-weld is not so strong, the mills operating only part time, an improvement has been shown in the past three weeks. Jobbers' inquiries indicate a desire to replenish depleted stocks.

Not only is there an improved demand for hoops and bands, but prices are somewhat stronger.

Contracts are being liberally placed for wire and wire products for delivery during the remainder of the year. Buyers of plain wire for further manufacture are placing considerable tonnages with northern Ohio mills. Specifications are more active against old contracts. Nails are being bought much more freely for 60 days ahead. In the aggregate the tonnage is much heavier and the mills are running close to normal. It is stated certain buyers are willing to close for larger tonnages and more extended deliveries than some mills are willing to accept.

While the sheet market still continues below normal, the volume of business placed is substantially better than at any time this year. Demand for tinplate is heavy and the largest producer in the district is operating his units close to 100 per cent.

ESTABLISHED 1855

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Steel in Shipbuilding

The report of shipbuilding in May indicates that operations are increasing somewhat, but shipbuilding in general is at a much lower rate than it was expected in the two or three months before the armistice would obtain at this time. The prediction then was of a rate this spring of 750,000 tons deadweight or more per month. The comparison of April and May, in deadweight tons of steel vessels, is as follows:

	April	May
Vessel completions	423,320	594,425
Hull launchings	453,116	563,058
Keel layings	535,408	595,550

It will be recalled that last year a month's launchings usually greatly exceeded the month's completions, so that unfinished hulls were accumulating. The two activities are now running together. April showed 30,000 tons more of hulls launched than of vessels completed, but in May there was a difference the other way of 31,000 tons. The laying of keels in April and May ran an average of 11 per cent ahead of the launchings, suggesting that vessel construction is increasing, while comparing April and May the three items shown in the above table when averaged together show an increase of 25 per cent. No such rate of monthly gain, of course, could be maintained; nevertheless the showing is distinctly favorable.

The consumption of steel by this shipbuilding, however, is much less than was expected. Taking even the highest item in the above table, the 595,550 tons deadweight of keels laid in May for steel vessels represents a steel consumption at the rate of only a little over 2,000,000 gross tons a year, or less than 6 per cent of the total quantity of finished steel the country can produce in a year, this being easily 36,000,000 gross tons. As the greater part of the ship steel is in the form of plates, there is a good line of business shown for the plate mills, but on the other hand plate rolling capacity has been greatly increased, in expectation of extremely heavy demand for ship plates. A little over two years ago plates for additional shipbuilding were regarded in various quarters as unobtainable, the result being the wooden ship dream.

Now it is easily seen that the steel industry was much more successful in providing additional plate capacity than the shipbuilding industry was in providing the outlet.

A Significant Jubilee

The annual spring meeting of the Iron and Steel Institute in London in May was noteworthy for several reasons. First of all it was the jubilee meeting of this far-famed international society of the iron and steel industry. The occasion was not only the fiftieth anniversary of the founding of the organization but it was the first meeting after the great war and one at which it was possible to discuss some of the vital war work of the British steel industry.

Despite the fact that all members in enemy countries were dropped during the war, the institute still maintains its international character. It has an eminent French steel maker as its president and many American metallurgists are not only active members but frequent attendants at its meetings. An indication of the repute of the society and its importance to the steel industry is the fact that in the last year more new members were added than in any year in its history.

This anniversary meeting was able to take cognizance of the fact that the institute had taken a distinct forward step, both in the old and new phases of the steel industry, and that it was in closer touch with the practical side than ever before. Increased attention has been devoted to research and some promising work has been undertaken or partly reported on. This is especially true of refractory problems as related to British resources. So pronounced has been the expansion in electric steel that an important joint session with a British electrical engineering society brought out several important papers and an illuminating discussion.

The famous institute was formally organized on June 23, 1869, with the Duke of Devonshire as president. Another duke was president later but the roll of presiding officers contains such notable names as Sir Lowthian Bell and Sir Hugh Bell.

Sir Henry Bessemer, Sir William Siemens, as well as Andrew Carnegie who established the scholarships which have fostered scientific research to a marked degree.

Many new problems confront this important society in the next few years. While many of them will be of a technical nature, it is not unlikely that some vital economic questions will come up for consideration, so far as the institute by-law excluding "all questions connected with wages and trade regulations" will permit this, for Great Britain's place in the steel trade of the world is not as well assured as before the war.

Circulation and Wealth

At the end of hostilities there was a general expectation of a great deflation in commodity prices and wage rates. The response to the expectation, however, was barely noticeable. Then comparisons began to be made between commodity prices and the value of property. It was argued that the purchasing power of the dollar in wages and commodities could not be cut in half and its power of purchasing real estate, houses, manufacturing plants, remain at the old level. It would be incongruous for it to cost twice as much to build a dwelling house and for the dwelling house built just before the war to remain at its old value.

When backed up so well by the experience of the past few months, the argument has found wide acceptance that high prices are due in chief part to inflation, or rather to the great increases in the amount of money in circulation, the amount of Government bonds outstanding and the volume of bank deposits, against which checks can be drawn, thus serving as money.

The question that many men are now endeavoring to answer, in order to guide their conduct, is whether the value of property will increase so as to correspond with the increased value in dollars, of commodities and of a day's labor. There is a record that has some suggestive value at this time—the comparison between the money circulation of the United States and the country's material wealth, as reported by the Bureau of the Census. Both have greatly increased from decade to decade, yet through the latter half of the last century they remained in close relation with each other. The per capita wealth divided by the per capita circulation was as follows:

1850.....	50.6	1880.....	44.7
1860.....	40.0	1890.....	45.5
1870.....	44.5	1900.....	43.3

Certainly it can be said that the two advanced with practically an even front. The one advance may have caused the other or the two may have stood in vital relations with fundamental influences. After 1900, however, there was a divergence. Passing over the report of national wealth for 1904, the next report was for 1912. From 1900 to 1912 the per capita wealth increased 68.6 per cent while the per capita circulation increased 26.7 per cent. For 1912 the relation comparable with the relations in the table above was 57.2, there being 57.2 times as much wealth per capita as circulating medium per capita.

This period, 1900 to 1912, was one of great industrial activity, not marred by serious industrial depressions, and it was a period of continuously heavy favorable foreign trade balances. If the volume of the circulating medium affects commodity prices, then failure of the circulating medium to increase rapidly should stimulate exports and discourage imports. Since 1912 the circulation per capita has increased about 60 per cent, while there is nothing like such an increase in the wealth of the country, unless it has occurred or is to occur by marking up values, as the share market can do when it advances. There is an excellent opportunity for exporting merchandise, provided the exports can be financed Credits rather than prices stand in the way.

Improving the Pace of Production

During the war-time rush when employees of every sort were largely sought and put to work with the least delay, the need was recognized of special facilities for instructing those who had not been trained for shop work. In the more progressive plants, especially those which took on women in large numbers, it was found highly advantageous to conduct schools for training purposes, and these served admirably in most instances. To-day the need of such schools is not urgent. Women have not wholly forsaken the metal-working factories, but they are not being trained in any such numbers as heretofore. Many from patriotic motives pure and simple took up the work as their part in winning the war, and now the shop does not need them and places must be found for returning soldiers.

Thus in many cases the first reason for these shop schools has disappeared; but there was a second end to be served. This was of no small consequence during the war-work pressure. If it happened that a graduate of the school when put to work in the regular way beside the other employees failed to make good, there were the school and its instructors ready to take hold anew and do their utmost to correct deficiencies in the worker's training. The same course could be followed when the graduate was given other work than that for which she was first trained. After another course of instruction for a few days in the school she was again prepared to go out into the plant and start on a new task.

So well did this plan work out that at one large plant it is now considered worth while to keep up the equipment of the war-time school for the benefit of employees who do not maintain a proper pace in output. It is possible to train a willing employee under these conditions to do his full share in output, and expert assistance has been gladly accepted when given in the privacy of the training school. It is true that some mechanics may resent the suggestion that they be further schooled and may not relish the effort of the management to secure from them a larger output than appears on their shop records. But, after all, the real appeal of any method of increasing production must be on the ground of increased earnings to the worker and of pride in his efficiency and in the quality of his product. With the right handling the training school should be made to stand for all these results.

Outlook for British Electric Steel

The future of the British electric steel industry seems to turn on the question of power costs. Under war conditions, when cost problems were generally thrown into the discard, the industry expanded more extensively than in any other country except the United States. At the recent meeting of the Iron and Steel Institute it was shown that there were 117 electric furnaces in Great Britain with a nominal output of 31,250 gross tons per month, or 375,000 tons per year. That electric steel was an important factor in the British war output appears from the doubling last year of the 1917 production of electric ingots and castings. Yet the 1918 total of 147,922 tons was less than 50 per cent of the rated annual output. The growth of the industry arose mainly from a shortage of steel and the ability of the electric unit to quickly transform turnings and scrap into high grade metal.

In the illuminating discussion of the subject at the joint session of the Iron and Steel Institute and the electrical engineers, an abstract of which appears on other pages, it was brought out that unless power costs could be radically reduced the future activity in Great Britain of the electric furnace would be limited. It seems that with power consumption at 650 units per ton and the price per unit ranging from 0.75d. (1.50c) up, the power cost exceeds £2 per ton, when tool steels are not involved. This is distinctly higher than in Canada and Sweden or even in the United States. In Canada costs have been less than half a cent per unit for power, while the average in the United States, even with the high cost of coal, has been about 1.25 cent per unit. Where water power is a factor or where the load question has been considered, the cost here has been considerably below this average. Even when the design of the electric furnace is improved and the price at which electrodes can be obtained is reduced, the deciding factor will be power costs, not only in Great Britain but in the United States. It is possible that the advent of the super power station, which is being considered in England, or the realization of the advantage of the load factor to power stations may, one or both, assure permanence and expansion to so important a phase of the British steel industry. Competition with Canada and Sweden is not possible, but it is hoped that the considerations referred to may have weight in preserving and even promoting the industry.

There was a difference of opinion in the discussion at London on the question whether acid open-hearth is equal to electric steel, some metallurgists maintaining that it is. But even so, the question at once came up as to the availability of raw materials for the acid process in Great Britain, for during the war it had been necessary to resort to the basic lined open-hearth furnace more and more. It may be that in England, as in the United States, the most economical and efficient future use of the electric furnace will be in duplexing with the basic open-hearth. It does not appear to what extent this practice has been employed on the other side, but it is certain

in view of experience here, that it makes it possible to obtain quality steel in quantity from relatively poor raw materials.

United States Employment Service

The determined purpose of Secretary of Labor Wilson to perpetuate the United States Employment Service, which was created for more efficient distribution of labor during the war meets with scant sympathy among employers of labor and workers not affiliated with trade unions, and also among others not directly connected with industry who are familiar with the working of the system. Granting that the principle of Government control of employment bureaus is a good one, its practical operation under the United States Employment Service during the war was bad because it was unfair. The managers of the organization did not play the game; discrimination was shown in numbers of cases, it is maintained. Instead of the square deal, the practical working of the system was such that the union man and the union shop got the best of it pretty much every time.

Secretary Wilson wants an appropriation of \$14,000,000 for the Service, apparently to maintain it for a year. In a letter sent to Representative J. M. C. Smith, chairman of the House Committee on Labor, and Senator Kenyon, chairman of the Senate Committee of Labor, he sets forth his plan in some detail. He would have the Federal Government contribute to the maintenance of State employment offices, such as have been established in a number of the States, which offices "would operate under standard rules and regulations, the national service handling clearance between States." The letter contains the usual arguments for public employment offices, concerning which there is no dispute. Where no free employment bureau is maintained evils creep in which can be remedied by the establishment of such centers of labor exchange, if they are operated on a basis of fair play. The Secretary believes that State and municipality should maintain the local offices, but that the Federal Government should share in the cost. To quote his letter:

The establishment and maintenance of an efficient system of local labor exchanges is a matter of national concern. An effective adjustment of labor supply and labor demand frequently means movements of workers from one State to another. The Federal Government is the one power which can secure uniformity of method and interchange of information to accomplish the required results. The United States Employment Service, for example, has been instrumental in transferring between States an average during the year 1919 of over 8000 workers a month. The goal toward which the proposed legislation is aimed is a locally-operated system to which the Federal Government contributes an amount equal to that contributed by the State, the Federal contribution being conditional upon compliance with uniform rules, regulations and standards of efficiency required by the National service.

Federal control such as this opens the way to two kinds of abuses, the one political patronage, as the term is commonly used, the other as it af-

fects labor itself. It is a dangerous weapon in the hands of a prejudiced and unscrupulous management. It would be interesting to know whether there was a preponderance of union or non-union labor among the 8,000 men shifted from one State to another, or of union or open shops among the establishments to which they were transferred. The charge is made openly, with the offer of ample evidence, that the United States Employment Service did make such discrimination. There are already vigorous protests against the expenditure of \$14,000,000 of the public money for such a purpose, as not only a waste, but as likely to further industrial discord rather than industrial efficiency.

"The Iron Age" and Its Readers

With the July 3 issue THE IRON AGE returns to the size of page to which its readers had been accustomed for many years before the war-time request from Washington for the saving of paper. For nearly a year this journal has inforced the economies started in the interest of fuel and transportation saving. The return to the wider margins will mean an improved appearance of both reading and advertising pages.

A triple presentation was given in THE IRON AGE of June 5 of the wreaking of the German lust for destruction upon the iron and steel industries of Belgium and France. First there was the paper by Leon Greiner, successor to his father, the late Adolph Greiner, as director general, Société John Cockerill, Seraing, Belgium, as read at the Iron and Steel Institute meeting in London last month. It described in detail the ruthless attempts to wipe out industrial Belgium by taking the very heart of operating mechanism from important plants. A second article was an appraisal of the German assault on the iron, steel and metal-working industries of Belgium, after special investigation by THE IRON AGE correspondent at Paris. A third feature was the reproduction of a number of striking photographs brought from Europe by President E. A. S. Clarke of the Consolidated Steel Corporation, New York, showing the work of the German vandals at the well known plant at Homécourt, France, near the German border, of the Compagnie des Forges et Aciéries de la Marine et l'Homécourt. The St. Chamond works of the above company, located some distance south of Paris, did remarkable work throughout the war in supplying heavy ordnance to the French army.

Industrial interests at Camden, N. J., have organized the Camden Manufacturers' Club. It is planned to build a club house for members' use to cost about \$200,000 and an option has been secured on property at Seventh and Cooper streets for this purpose. It is expected that the membership will reach close to 500.

The Navy Department has awarded to the Dale-Brewster Machinery Co., 54-60 Lafayette Street, New York, an order for 875 tons of floor plates for naval vessels being built at the Norfolk Navy Yard.

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Steel Corporation Orders Continue to Decline

Unfilled orders on the books of the United States Steel Corporation, May 31, were 4,282,310 tons, compared with 4,800,685 tons on April 30, a decrease of 518,375 tons. This decline compares with 629,887 tons in April, 580,215 tons in March, 673,481 tons in February, 694,884 tons in January and 745,511 tons last December. The unfilled orders a year ago, May 31, 1918, were 8,337,623 tons, or nearly twice those now. The table below gives the unfilled tonnage for the Steel Corporation at the close of each month beginning with January, 1916:

	1919	1918	1917	1916
January	6,684,268	9,477,853	11,474,054	7,922,767
February	6,010,787	9,288,453	11,576,697	8,568,966
March	5,430,572	9,056,404	11,711,644	9,331,001
April	4,800,685	8,741,882	12,183,083	9,829,551
May	4,282,310	8,337,623	11,886,591	9,937,798
June		8,918,866	11,383,287	9,640,458
July		8,883,801	10,844,164	9,593,592
August		8,759,042	10,407,049	9,660,357
September		8,297,905	9,833,477	9,522,584
October		8,353,293	9,009,675	10,015,260
November		8,124,663	8,897,166	11,058,542
December		7,379,152	9,381,718	11,547,286

The largest total of unfilled orders was on April 30, 1917, when it was 12,183,083 tons; the lowest was on Dec. 31, 1910, when the total was 2,605,747 tons.

Iron and Steel Markets

ACTIVITY IN PIG IRON

Less Expectation of Declines in Prices

40,000 Tons of Rails for Belgium—Automobile Buying of Alloy Steels

Volume of new business and rate of production in steel have undergone little change in June. The improvement of three weeks ago has been held, without the signs that usually attend a regulation buying movement. The amount of new manufacturing capacity that is projected in metal-working lines in the Middle West, particularly in the Detroit district, and the repair and new construction work laid out by a number of steel companies are outstanding features.

The reduction of 518,375 tons in the Steel Corporation's unfilled orders was rather more than was expected, but Steel Corporation operations have been at a generally higher rate than those of independent companies. Apparently the export movement in May was even smaller than had been supposed.

It is interesting to watch the spread of the belief that substantially the present level of prices, with possible slight concessions here and there, also possible advances, is to be reckoned with for a longer time than seemed likely three months ago. Jobbers appear to be buying with less fear of having stocks decline in value before they can be sold.

In the absence of railroad buying, the possibility that the railroads will not be able to handle the fall movement of grain is urged, on the belief that the steel trade will be busier then.

Pig iron and old material present the most tangible indications of the change that is coming over the situation. Buffalo reports pig iron orders for the week approximating 125,000 tons. For 12,000 tons of basic \$25.75 per ton was paid. Both Buffalo and Birmingham report that additional stacks are soon to be blown in. Concessions of \$1 to \$3 on Southern iron to meet Northern competition continue to be made. A St. Louis buyer is in the market for 15,000 tons of basic iron and there is a West Virginia inquiry for 4000 tons. Two Cleveland firms have sold 37,000 tons of iron in the week. On southern Ohio iron, producers have absorbed part of the freight where territory served by other furnaces was penetrated. Sales of basic iron in eastern Pennsylvania have been made at \$25 and \$25.50 at furnace.

An inquiry for 20,000 tons of basic iron for Wales is considered more promising than most of the export business lately considered. Concessions on both the iron and the ocean freights must be had to come within the present spread of \$14 between American and British pig iron. Inquiry for Southern iron from Great Britain and Scandinavia has developed offerings of vessel space at \$15.

Old material shows increasing strength and prices are higher in the Pittsburgh and Chicago

districts, notably on heavy melting steel, which has advanced \$1 or more.

THE IRON AGE's cable reports the buying of 40,000 tons of rails by Belgium at 500 francs, or about \$77.50 per ton, but it is doubted that Belgian mills could roll any of this order for months. The Algoma, Ontario, mill is credited with an order for 8000 tons of heavy rails for Belgium. Export business with England is difficult to put through, though prices which American mills are offering, c.i.f. British ports, are low enough to compete successfully with those which British mills are presumed to quote for home consumption.

The sheet trade has developed more activity, though still at the expense of prices where heavier gages are involved.

Three fairly large contracts for bars for the last half are reported from Pittsburgh at "regular" prices, though there is still cutting on reinforcing bars rolled from shell steel discards.

There is continued effort to whet interest in the wire trade, which for some time has shown healthy activity, by intimations of a possible advance of \$2 per ton or more. At Cincinnati a recent Government sale of surplus wire nails led to a slight reduction in jobbers' prices.

Heavy demand for alloy steel has come from automobile manufacturers, one contract covering 4000 tons for the remainder of the year.

Pittsburgh

PITTSBURGH, June 10.

Officials and sales managers of local steel companies making every kind of steel products continue to report improvement in the steel business, saying that the volume of specifications and orders so far in June has been fully as large as in the first ten days of May. Some producers expect to book more business this month than in last month. Wire products and pipe are especially active, sheets are also improving, but plates, tin plate and the smaller lines of finished steel products are still dragging to some extent. The past week has seen a better demand for scrap, and a rise in prices from \$1 on some grades up to \$2 or more on others.

There seems no longer much thought of any lower prices soon. In fact, there is now more talk of early advances in prices on some lines of finished steel. It would not be surprising to hear at any time of an advance of \$2 to \$5 per ton on wire products, and it is now under consideration by the leading interest. It is stated that on the 325,000 tons of finished steel placed by the General Motors Co., as first referred to in THE IRON AGE of May 29, the entire contract having been handled by the general manager of sales of the Carnegie Steel Co., prices as of March 21 were stipulated on all of this material without deviation.

It is true that there are still dips in prices on certain lines of finished steel, but these are not serious and are confined mostly to the lighter lines. Even in the matter of plates, for which demand is quiet, there is said to be very little shading. In two recent cases plates were sold at 2.50c. at mill, a reduction of \$3 a ton from the regular price, but one mill offered part of the business turned the order down.

There is quite a heavy inquiry for blast furnace coke for third quarter and last half of the year, and some fairly large contracts are likely to be closed this and

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	June 10, 1919	June 3, 1919	May 13, 1919	June 11, 1918
No. 2 X, Philadelphia...	\$29.50	\$29.50	\$31.90	\$34.25
No. 2, Valley furnace...	26.75	26.75	26.75	33.00
No. 2, Southern, Cincinnati...	28.35	28.50	30.35	35.90
No. 2, Birmingham, Ala...	24.75	25.75	26.75	33.00
No. 2, furnace, Chicago...	26.75	26.75	26.75	33.00
Basic, deliv., eastern Pa...	25.50	29.65	29.65	32.75
Basic, Valley furnace...	25.75	25.75	25.75	32.00
Bessemer, Pittsburgh...	29.35	29.35	29.35	36.30
Malleable, Chicago...	27.25	27.25	27.25	33.50
Malleable, Valley...	27.25	27.25	27.25	33.50
Gray forge, Pittsburgh...	27.15	27.15	27.15	32.75
L. S. charcoal, Chicago...	38.85	38.85	38.85	37.50

Rails, Billets, Etc.,

Per Gross Ton:

Bess. rails, heavy, at mill.	45.00	45.00	45.00	55.00
O-h. rails, heavy, at mill.	47.00	47.00	47.00	57.00
Bess. billets, Pittsburgh...	38.50	38.50	38.50	47.50
O-h. billets, Pittsburgh...	38.50	38.50	38.50	47.50
O-h. sheet bars, P'gh...	42.00	42.00	42.00	51.00
Forging billets, base, P'gh.	51.00	51.00	51.00	60.00
O-h. billets, Phila...	42.50	42.50	42.50	50.50
Wire rods, Pittsburgh...	52.00	52.00	52.00	57.00

Finished Iron and Steel,

Per Lb. to Large Buyers: Cents Cents Cents Cents

Iron bars, Philadelphia...	2.595	2.595	2.595	2.685
Iron bars, Pittsburgh...	2.35	2.35	2.35	3.50
Iron bars, Chicago...	2.50	2.50	2.50	3.50
Steel bars, Pittsburgh...	2.35	2.35	2.35	2.90
Steel bars, New York...	2.62	2.62	2.62	3.095
Tank plates, Pittsburgh...	2.65	2.65	2.65	3.25
Tank plates, New York...	2.92	2.92	2.92	3.445
Beams, etc., Pittsburgh...	2.45	2.45	2.45	3.00
Beams, etc., New York...	2.72	2.72	2.72	3.195
Skelp, grooved steel, P'gh.	2.45	2.45	2.45	2.90
Skelp, sheared steel, P'gh.	2.65	2.65	2.65	3.25
Steel hoops, Pittsburgh...	3.05	3.05	3.05	3.50

*The average switching charge for delivery to foundries in the Chicago district is 50c. per ton.

†Silicon, 1.75 to 2.25, ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire,	June 10, 1919	June 3, 1919	May 13, 1919	June 11, 1918
Per Lb. to Large Buyers: Cents Cents Cents Cents				
Sheets, black, No. 28, P'gh.	4.35	4.35	4.35	5.00
Sheets, galv., No. 28, P'gh.	5.70	5.70	5.70	6.25
Wire nails, Pittsburgh...	3.25	3.25	3.25	3.50
Cut nails, Pittsburgh...	4.25	4.25	4.25	4.00
Fence wire, base, P'gh...	3.00	3.00	3.00	3.25
Barb wire, galv., P'gh...	4.10	4.10	4.10	4.35

Old Material, Per Gross Ton:

Carwheels, Chicago...	\$20.50	\$20.50	\$21.00	\$29.00
Carwheels, Philadelphia...	22.00	20.00	22.00	29.00
Heavy steel scrap, P'gh.	17.50	16.00	14.50	28.50
Heavy steel scrap, Phila.	16.00	15.50	15.00	29.00
Heavy steel scrap, Ch'go.	16.00	15.50	15.25	29.00
No. 1 cast, Pittsburgh...	19.00	17.00	17.00	28.50
No. 1 cast, Philadelphia...	19.00	22.00	21.50	29.00
No. 1 cast, Ch'go, net ton.	19.50	19.50	19.50	27.00
No. 1 RR. wrot., Phila...	21.00	21.00	21.00	34.00
No. 1 RR. wrot., Ch'go, net	16.50	15.75	15.25	29.75

Coke, Connellsville,

Per Net Ton at Oven:

Furnace coke, prompt...	\$4.00	\$4.00	\$3.50	\$6.00
Furnace coke, future...	4.00	4.00	4.00	6.00
Foundry coke, prompt...	4.50	4.50	4.25	7.00
Foundry coke, future...	5.00	5.00	4.75	7.00

Metals,

Per Lb. to Large Buyers: Cents Cents Cents Cents

Lake copper, New York...	17.75	16.75	16.00	23.50
Electrolytic copper, N. Y.	17.50	16.50	15.75	23.50
Spelter, St. Louis...	6.30	6.15	6.05	7.37 1/2
Spelter, New York...	6.65	6.50	6.40	7.62 1/2
Lead, St. Louis...	5.00	4.95	4.80	7.12 1/2
Lead, New York...	5.25	5.20	4.95	7.25
Tin, New York...	72.50	72.50	72.50	90.00
Antimony (Asiatic), N. Y.	8.37 1/2	8.37 1/2	8.75	12.75
Tin plate, 100-lb. box, P'gh	\$7.00	\$7.00	\$7.00	\$7.75

next week. Some of these will be on a sliding scale, based on the price of basic pig iron, the coke producers giving either 6 or 6 1/4 tons of coke for a ton of basic iron. There will likely be a minimum price of \$4 and a maximum price of \$8 for furnace coke on these contracts.

It is becoming more evident that the recent betterment in the steel business is not merely a flash in the pan. It is not expected that prices will be much higher this year, except on two or three finished steel lines, and the most likely item to advance in price is wire and wire nails. It is claimed there has been no money in wire nails since the \$3 price was fixed on March 21. Some steel concerns say that if they had orders enough to run 100 per cent, they would not be able to get enough labor. It is a fact that there is very little surplus labor in the Pittsburgh district at present.

Pig Iron.—There is practically no inquiry for basic or Bessemer iron, only an occasional small lot coming out for prompt shipment. There is not enough business offering either in basic or Bessemer iron to test prices. So it is not known what might be done in prices on Bessemer and basic, if a consumer came in the market for a large quantity. There is very little resale basic or Bessemer iron to be had now. The resale basic offered for some time by a Brackenridge, Pa., interest having been pretty well cleaned up. There is a fair amount of inquiry for foundry iron, some consumers being anxious to cover for third quarter only, while others want to contract for their needs for the last half of the year. We note considerable sales of No. 2 foundry iron for third quarter and last half delivery at the full price of \$26.75 for No. 2 at Valley furnace. The Standard Sanitary Mfg. Co. has bought about 3500 tons of Southern iron for its Louisville plant, paying \$27 delivered for silicon, 1.75 to 2.25, and \$28 delivered for silicon up to 2.75. This makes a furnace price of about \$23.70, Birmingham, for the lower silicon iron. The Carnegie Steel Co. is now operating 32 out of 59 blast furnaces, and Ella and Claire, of E. W. Mudge &

Co., are both out, while Struthers went out last week. We repeat former prices as follows:

Basic pig iron, \$25.75; Bessemer, \$27.95; gray forge, \$25.75; No. 2 foundry, \$26.75; No. 3 foundry, \$26.25, and malleable, \$27.25; all per gross ton at Valley furnaces, the freight rate for delivery in the Cleveland and Pittsburgh districts being \$1.40 per ton.

Ferroalloys.—The inquiry for ferroalloys is light, nearly all consumers still having stocks that will carry them over this year. On 78 to 82 per cent ferromanganese some sellers are holding firmly for \$125 delivered, but for 70 per cent as low as \$90 has been quoted. There is still a good deal of resale ferroalloy material to be had, and producers are selling very little.

We quote 78 to 82 per cent resale ferromanganese at \$95 to \$105, delivered, with a reduction of about \$2 per unit for lower percentages. We quote resale 50 per cent ferrosilicon at \$80 to \$85 and resale 18 to 22 per cent spiegeleisen at \$33 to \$35, delivered. Prices on Bessemer ferrosilicon are: 9 per cent, \$43; 10 per cent, \$45; 11 per cent, \$48; 12 per cent, \$51. We quote 6 per cent silvery iron, \$36.75; 7 per cent, \$37.75; 8 per cent, \$40.25; 9 per cent, \$42.25, and 10 per cent, \$44.75, but some sellers not in Jackson County have been quoting on a basis of \$35 for 6 per cent. About \$3 per gross ton advance is charged for each 1 per cent silicon for 11 per cent and over. All the above prices are f.o.b. maker's furnace, Jackson or New Straitsville, Ohio, which have a uniform freight rate of \$2.90 per gross ton for delivery in the Pittsburgh district.

Billets and Sheet Bars.—The demand for billets and sheet bars is not any better, but steel mills that have contracts to supply sheet bars to sheet and tin plate makers say the latter are specifying more freely for steel, indicating a heavy demand for sheets and tin plate. Two or three fairly large contracts for sheet bars have been placed with Youngstown mills for third quarter, and reports are the full price of \$42 was obtained. Operation among the steel mills is a little better, and is said to be now averaging 65 to 70 per cent.

We quote 4 x 4 in. soft Bessemer and open-hearth billets at \$38.50, 2 x 2 in. billets at \$42; sheet bars, \$42; slabs, \$41, and forging billets, \$51 base, all f.o.b. at mill, Pittsburgh or Youngstown.

Plates.—There is no betterment in the demand for plates, which has been very dull for five or six months, and there is nothing in sight to indicate that it will be heavier in the near future. None of the plate mills is running full, the average of operations being 60 to 70 per cent. Export inquiry is fairly active, on which domestic prices are usually obtained. We quote $\frac{1}{4}$ in. and heavier sheared plates at 2.65c. at mill, Pittsburgh, for domestic consumers. In a very few cases this price has been shaded \$2 to \$3 per ton.

Structural Material.—The Jones & Laughlin Steel Co. will furnish about 15,000 tons of plain steel for the contract taken by the McClintic-Marshall Co., recently, for over 14,000 tons of fabricated steel for the new steel mill buildings for the Weirton Steel Co., Weirton, W. Va. The McClintic-Marshall Co. has taken 850 tons for a fertilizer plant at Savannah, Ga., and 150 tons for a new lunch room for the Westinghouse Electric & Mfg. Co., East Pittsburgh. The Fort Pitt Bridge Works has taken 900 tons for the Cowell & Hubbard Building, Cleveland, and 600 tons for a railroad depot at Canton, Ohio. The American Bridge Co. has taken 750 tons for Government hangers at Hampton Roads, Va., and the Pittsburgh Bridge & Iron Works 250 tons for an extension to the plant of the American Metal Corporation, Langloth, Pa. A large amount of new work is being figured on, included in which are 8000 to 10,000 tons for a new hotel in Cleveland, and also there is a reported inquiry for 12,000 tons for a very large apartment being figured on for that city. A large amount of local work is in sight, but it will likely take some time for this to develop into actual business. Fabricators and also the mills say that prices on plain material are being firmly held, and deliveries are being made promptly.

We quote beams and channels up to 15 in. at 2.45c. at mill, Pittsburgh.

Sheets.—There has been some betterment in the demand for sheets, the leading interest reporting that its specifications on Monday and Tuesday of this week were 3000 tons for each of those days, much of this made up of automobile stock. The demand for black and galvanized sheets is better, but there is still some shading in prices. Blue annealed, No. 8 gage and lighter are still being sold by some mills, not classed as sheet mills, at plate prices, plus the extras, or at 3.05c., a reduction of 45c. per 100 lb. from the regular price of blue annealed No. 8 gage, which is 3.50c. at mill. Sheet mills are now operating at 70 to 75 per cent of rated capacity. Prices on sheets, as adopted on March 21, which are not always minimum, are given on page 1614.

Tin Plate.—Specifications on contracts for tin plate are coming in better. The leading interest reports that in two days recently it had specifications for about 60,000 boxes each day, and other mills also report an increase in specifications. Some are operating at a larger rate than for three or four months. There is quite a good export demand for tin plate, this coming from Japan, India, Chili, Cuba and Canada. On some of this export business domestic prices are slightly shaded. We quote production tin plate at \$7 per base box f.o.b. Pittsburgh. The demand for terne plate is heavier, especially from the East, and some good sized orders are being placed. Prices on terne plate as adopted March 21 are given on page 1614.

Wire Rods.—One local maker of rods reports it has all the rods on its books it can take care of up to October, and is not quoting on inquiries for delivery before that month. Another maker states it is not actively trying to sell rods, needing a larger part of its output for its own wire mills, which are very busy and filled up for some time. We note two sales of 500 tons each of soft rods at the full price of \$52 per gross ton at mill. Prices on rods are given in detail on page 1614.

Wire Products.—A leading maker of wire and wire nails has sent out letters to its district sales agents, instructing them not to take on any more wire or wire nails orders, without first submitting them to the home office for action. This concern reports it is sold up on wire to October and on wire nails for 60 to 90 days.

Two other wire mills report they have all the business they can take care of and are operating close to 90 per cent of rated capacity. Jobbers are urging mills to hurry shipments of wire nails, as their stocks are low and they are badly in need of material. There is a heavy export demand for wire and wire nails coming from South America, India and other countries, and a good deal of business is being closed. It is stated regular prices on wire and bright nails are being firmly held, but there is still some shading in coated nails, about 10c. per keg. Prices on wire products, as adopted March 21 are given on page 1614.

Iron and Steel Bars.—There is a good deal of activity among large consumers of iron and steel bars to cover their needs for third quarter and last half of the year, and some contracts have been placed. One leading mill that has taken three fairly large contracts for steel bars for last half of the year states positively there was no concession made in the price. There is still some cutting in prices on reinforcing bars, some mills rolling these from shell steel discards. About a month ago, these bars were sold at 2c., but lately they have been selling at 2.10c. and 2.15c. at mill. The demand for iron bars is light.

We quote soft steel bars rolled from billets at 2.25c. from old steel rails, 2.45c. Bar iron is quoted at 2.35c. for Eastern shipment and 2.55c. for Western shipment.

Hot-Rolled Strip Steel.—The demand is better, but there is still some shading in prices, a few mills selling hot-rolled steel strips on the hoop and band basis, which is 3.05c. at mill. We therefore quote hot-rolled strip steel at 3.05c. to 3.30c. per lb. f.o.b. Pittsburgh.

Cold-Rolled Strip Steel.—Mills report a more active demand and say that prices are holding more firmly than for some time. A few mills are still cutting prices by absorbing part or all of the freight to point of delivery. The price named below is that adopted on March 21, but is not always the minimum of the market.

We quote cold-rolled strip steel at \$5.65 base per 100 lb. f.o.b. Pittsburgh, for $1\frac{1}{2}$ -in. and wider, 0.100 in. and thicker hard tempered in coils 0.20 carbon and under. Box charge 25c. per 100 lb.

Nuts and Bolts.—Several makers report a slight increase in demand, but jobbers and consumers are still inclined to place orders only for current needs, and for prompt shipment. Prices are still being shaded, some makers absorbing part or all of the freight from point of delivery, while others make a straight cut of $2\frac{1}{2}$ to 5 per cent on the regular discounts. The discounts on nuts and bolts given on page 1614 are those adopted on March 21, but are being more or less shaded.

Shafting and Screw Stock.—There is very little increase in the demand for shafting, which has been quiet for some months, and has been for only 30 to 40 per cent of capacity. The automobile and the screw stock machine trades are buying freely, but very little is coming in from the implement trade. We quote cold-rolled shafting at 28 per cent off list in carloads and 23 per cent in less than carloads, f.o.b. Pittsburgh. Some makers are slightly shading these discounts by absorbing part or all of the freight.

Hoops and Bands.—The demand for both hoops and bands is more active than for three or four months, makers reporting that recently they have booked fairly large orders at full prices. We quote hoops and bands at 3.05c. at Pittsburgh, plus usual extras.

Spikes.—Reports of an inquiry in this market for 15,000 kegs of spikes for export to China cannot be confirmed among domestic makers, several of whom state they have not heard of it. There is some small export inquiry for spikes, but nothing of moment. The domestic demand is only fair, and does not give promise of being larger in the near future.

We quote standard spikes, $9/16 \times 4\frac{1}{2}$ in., and also small spikes, \$3.35 base per 100 lb. in carload lots of 200 kegs or more plus usual extras. Boat and barge spikes, \$3.85 per 100 lb. in carload lots of 200 kegs or more.

Boiler Tubes.—Several makers report the demand for locomotive and merchant tubes as slightly better. Recently some locomotives were placed for export, and contracts for the tubes were placed with the local mills.

Discounts on iron and steel tubes as adopted March 21 are given on page 1614.

Iron and Steel Pipe.—A report is current that the contract of the Lone Star Gas Co. for about 235 miles of pipe, ranging in size from 6-in. to 12-in., has been divided among several mills, but this cannot be confirmed. The Gulf Refining Co. has placed 30 miles of 10-in. pipe, half of it with a local mill and half with a Youngstown mill. On lap-weld pipe and other oil country goods, the leading mills are now filled up to about October, and cannot take on anything more for delivery before that month. Several of the larger mills making steel pipe are operating at 90 per cent. The demand for oil country goods this year is beyond all precedent and reflects the great activity in the oil fields in Texas, Louisiana and other States. The demand for butt-weld pipe, used largely for building construction purposes, is heavier now than at any time for four or five months, and in fact the market on tubular goods is more active than any other lines of finished steel products, with the possible exception of wire. Discounts on iron and steel pipe, as adopted on March 21, are given on page 1614.

Old Material.—The scrap market has shown a decided betterment in demand and also in prices, nearby grades, especially scrap for steel making, being up from \$1 to \$1.50 per ton. A week ago consumers were not interested, but in the past four or five days considerable inquiry has come out and some sales have been made. Dealers believe the present spread of about \$9 between heavy melting scrap and basic iron is unnatural, and that there is no reason why steel scrap should not go considerably higher. If steel making scrap should advance sharply, it is argued that it will carry other grades with it, to some extent at least. Bids on Pennsylvania Railroad scrap, lines East and West, were opened in Philadelphia Monday, June 9, and several local dealers did not get a ton. Early last week several local concerns refused to buy heavy steel scrap at \$16 to \$16.50, but in the last day or two have paid up to \$17.50, and it is said heavy steel scrap for extended delivery has sold in the Youngstown district at as high as \$18.50 per gross ton delivered. We note a sale of 500 tons of heavy steel scrap at \$17.50, delivered, and a sale of 1000 tons of bundle sheet sides and ends made early last week at \$12.50, mill, but the price is higher to-day. We now quote for delivery to Pittsburgh consuming points and other points that take Pittsburgh freights in gross tons as follows:

Heavy steel, melting, Steubenville, Follansbee, Brackenridge, Monessen, Midland and Pittsburgh, delivered	\$17.50 to \$18.00
No. 1 cast, for steel plants	19.00 to 19.50
Rerolling rails, Newark and Cambridge, Ohio; Cumberland, Md.; Franklin, Pa., and Pittsburgh	19.00 to 20.00
Compressed steel	14.50 to 15.00
Bundle sheet, sides and ends, f.o.b. consumers' mills, Pittsburgh district	13.50 to 14.00
Bundle sheet stamping	12.00 to 12.50
No. 1 busheling	14.50 to 15.00
Railroad grate bars	15.00 to 16.00
Low phosphorus melting stock (bloom and billet ends, heavy plates) ¼ in. and heavier	23.00 to 24.00
Iron car axles	29.00 to 30.00
Locomotive axles, steel	29.00 to 30.00
Steel car axles	26.00 to 27.00
Railroad malleable	16.00 to 16.50
Machine shop turnings	9.50 to 10.00
Cast iron wheels	22.00 to 23.00
Roller steel wheels	19.00 to 20.00
Sheet bar crop ends (at origin)	19.00 to 19.50
Heavy steel axle turnings	13.50 to 14.00
Heavy breakable casts	19.50 to 20.00
Cast iron borings	11.25 to 11.50
No. 1 railroad wrought	19.50 to 20.00

Coke.—Sentiment is better, and while shipments to furnaces have not increased much, it is now believed that the pig iron output is probably at minimum and that the demand for furnace coke will soon be heavier. There is a good deal of inquiry for blast furnace coke for last half shipment, and it is likely some contracts will be closed at a flat price and some on a sliding scale. One producer has quoted on a large inquiry on the basis of 6 tons of coke for 1 ton basic iron until the price of the

latter reaches \$31.50, Pittsburgh, when a flat price is to rule. The maximum price on the contract is to be \$8 per net ton at ovens, regardless of how high basic iron may go, while the minimum price is to be \$4 per net ton at ovens. It is likely some contracts may be closed on the basis of 6¼ tons of coke for 1 ton of basic iron. In regard to contracts at a flat price for last half, some furnaces prefer to adjust the price from month to month and this may be done. The coke output is increasing, and the number of furnace ovens in operation is now about 25 per cent against 20 per cent a month ago. We now quote standard makes of blast-furnace coke for prompt shipment at \$4 to \$4.25. Some users are paying \$4.50 or higher for the best grades of furnace coke for June shipments. The best grades of 72-hr. foundry are \$4.50 to \$4.75 for prompt shipment, while on contracts prices are \$5 per ton and higher. The output in the upper and lower Connellsville regions for the week ending May 31 is 111,335 tons, an increase over the previous week of over 3000 tons.

Carnegie Steel Co. Changes

PITTSBURGH, June 10—(By Wire).

W. B. Weston, formerly manager of sales of the St. Louis office of the Carnegie Steel Co., has been made manager of sales of the Detroit office, succeeding Frank E. Spencer. W. W. Scott, who has been in the sales department of the St. Louis office for some years, and Dennis Crowley, who has been in the Pittsburgh sales offices of the Carnegie Steel Co. for some years, have been promoted to succeed Mr. Weston, Mr. Scott with the title of manager of sales, and Mr. Crowley, assistant manager of sales.

George H. Vant, who has been connected with the Pittsburgh sales offices of the Carnegie Steel Co. for some years, has been made manager of sales of the Cincinnati office, succeeding Mr. Carruthers, who was recently made manager for the Chicago district of the Illinois Steel Co.

Water Softening Plant Inspected

YOUNGSTOWN, OHIO, June 10—Saturday afternoon, June 7, members of the Engineers Society of Western Pennsylvania came by special train from Pittsburgh and inspected the water softening plant of the Republic Iron & Steel Co. The visitors were guests of the Republic company and the William B. Scaife & Sons Co., Pittsburgh, which installed the system. The system includes intake from the Mahoning river, pumping equipment and a We-fu-go water purifying system, having a capacity of 7,200,000 gal. for 24 hrs., and is said to be the largest and most complete water softening system for boiler feed water ever built.

Labor Shortage Feared

YOUNGSTOWN, OHIO, June 10.—Because of the exodus of foreigners, manufacturers in the Shenango Valley are anticipating a labor shortage before the end of the year. It is estimated from 50 to 60 per cent. of the aliens will leave for their native lands before the summer ends, many to remain in Europe. Among those leaving are Italians, Rumanians, Jugo-Slavs, Czech-Slavs and Austrians.

Cincinnati Strike Ended

The strike of the iron molders of Cincinnati that tied up a number of foundries in Cincinnati and Covington, Ky., nearly six weeks has been ended and the molders returned to work June 9. The new wage schedule is \$5.60 per day for an 8½ hr. day until Sept. 1, 1919 and \$6 a day after that date for an 8 hr. day covering the period between Sept. 1 and Dec. 31, 1919.

The Phoenix Iron Works Co., Meadville, Pa., has recently closed contracts for tanks for oil refineries, which call for about 1500 tons of plates, and this material has been placed with the mills.

Chicago

CHICAGO, June 10—(By Wire).

The situation continues to improve. While consumers still hesitate to place large orders, there is an increasing volume of small orders which in the aggregate represent a fair business. In the case of a few products purchasers are beginning to ask for contracts, indicating that they no longer hope for reductions and desire protection against possible advances. Although fabricating awards have declined, the structural business pending is decidedly encouraging. The weakness in sheets, which was recently so pronounced, is disappearing. The leading interest has received specifications on about 18,000 tons of the rails recently ordered by the Railroad Administration and has booked 3500 tons of 45-lb. rails for shipment to Japan. Mill operation continues about the same.

There is increasing activity in pig iron and old material is stiffening in sympathy with the improved tone in iron and steel products.

Pig Iron.—June sales of iron have been good. One dealer, for instance, has closed more business so far this month than in the entire month of May or any month since the armistice. Not only are inquiries increasing, but numerous orders are being closed for lots ranging from 1000 to 4000 tons. Consumers, in some instances, are buying to cover their full requirements for the last half of the year. An automobile manufacturer is in the market for 10,000 tons of both Northern and Southern foundry, 1.75 to 2.25 per cent silicon. Spot business for first half delivery has practically stopped as the close of the half year approaches. Interest is no longer confined exclusively to foundry grades. Malleable is becoming active, individual orders for as much as 1000 tons being placed. Basic consumers, who have had little business since the armistice, are commencing to ask for deliveries on contracts. The Southern interest which first absorbed the freight to Chicago has restricted sales on that basis to foundry with a silicon content in excess of 2.75 per cent for delivery not beyond the third quarter. A few other Southern producers, however, are still willing to absorb freight on lower silicon irons, although little Southern foundry silicon 1.75 to 2.25 is now being sold. Two Southern furnaces which have been waiving freight to Northern points have taken about all that business they desire. One, a Virginia furnace, has announced it is now out of the market, and the other, an Alabama producer, will be out of the market at the end of the week. The supply of silvery has reached a low point and a stiffening in prices would not be surprising. There have been no extensive purchases as yet of charcoal iron for second half requirements. There are some inquiries for low phosphorus running as high as 500 tons, most of the business current calling for shipment spot or within 60 or 90 days. There are very few inquiries for delivery covering the entire last half. Some copper free low phosphorus is now being offered at as low as \$37.50 furnace, while copper bearing is available at \$35 furnace.

The following quotations are for iron delivered at consumers' yards, except those for Northern foundry, malleable and steel-making irons, including low phosphorus, which are f.o.b. furnace, and do not include a switching charge averaging 50c. per ton:

Lake Superior charcoal, average silicon, 1.50, second half delivery, f.o.b. furnace, average freight to Chicago \$2.50 (other grades subject to usual differentials).....	\$29.25
Lake Superior charcoal, first half, nominal.....	38.85
Northern coke foundry, No. 1 silicon, 2.25 to 2.75	28.00
Northern coke foundry, No. 2 silicon, 1.75 to 2.25	26.75
Northern high-phosphorus foundry.....	26.75
Southern coke, No. 1 foundry and No. 1 soft silicon, 2.75 to 3.25.....	29.75
Southern coke, No. 2 foundry, silicon, 2.25 to 2.75	28.00
Southern foundry, silicon, 1.75 to 2.25.....	26.75
Malleable, not over 2.25 silicon.....	27.25
Standard Bessemer	27.95
Basic	25.75
Low phosphorus (copper free).....	37.50
Silvery, 7 per cent.....	41.55

Ferroalloys.—The supply of resale ferromanganese has practically disappeared and furnaces are commencing to sell new material at \$125, delivered. There is still some resale spiegeleisen available, but it is believed that the supply will soon be exhausted. Producers are now selling at \$31 furnace. There is an inquiry for 150 tons of spiegeleisen before the trade. Ferrosilicon continues dull.

We quote 80 per cent ferromanganese at \$125, delivered; 50 per cent ferrosilicon, resale, at \$110, delivered; 16 to 22 per cent spiegeleisen, resale, at \$30, delivered; spiegeleisen, 18 to 22 per cent, \$31 furnace.

Plates.—Business is gradually improving and mill operation is better. There is an increasing demand from boiler and tank manufacturers, warehouses are commencing to replenish their stocks, and the recent release of cars by the Government has also given the mills additional work.

The mill quotation is 2.65c. Pittsburgh, the freight to Chicago being 27c. per 100 lb. Jobbers quote 3.67c. for plates out of stock.

Structural Material.—Jobbers and fabricators who have been buying sparingly for several months are commencing to replenish their stocks, evidently believing that there is no early prospect of lower prices. Although fabricating awards have declined during the past week, the business pending and in contemplation is encouraging. The Worden-Allen Co. will fabricate 375 tons for a factory building to be erected by the Pacific Steel & Boiler Co. at Chicago. The Grip Nut Co. has awarded 240 tons for a plant addition in Chicago to the Federal Iron Works, Chicago. Bids were taken today on about 3500 tons for the Crerar Library, Chicago. The Corn Products Refining Co. is inquiring for 600 tons for a plant addition at Argo, Ill. Plans are being prepared for a Federal Reserve Bank at Kansas City, which will require about 3500 tons. The A. S. Necker Co., Cleveland, has the general contract for a viaduct in Kansas City which will involve 750 tons. The Fort Pitt Bridge Works will fabricate 2100 tons for a bascule bridge at Wells Street, Chicago; the machinery, involving 350 tons, has been awarded to the Andrews Engineering Co. The Chicago Union Station Co. has awarded 625 tons for a subway in Canal Street to the Joliet Bridge & Iron Co.

The mill quotation is 2.45c. Pittsburgh, which takes a freight rate of 27c. per 100 lb. for Chicago delivery. Jobbers quote 3.47c. for material out of warehouse.

Bars.—Mild steel bars are more active than bar iron or rail-carbon steel. The demand for the former comes from varied sources, among them jobbers and fabricators who are replenishing their stocks, drop forgers and miscellaneous manufacturers. Rail-carbon steel is being used in increasing quantities for reinforcing as well as bedstead and fence post manufacture. While bar iron is relatively dull, mills are holding to prices, their contention being that reductions would entail a loss. Bar consumption by the railroads is at a standstill and the agricultural implement manufacturers have been buying sparingly. It is reported, however, that the stocks of the implement makers are so low that they are borrowing from one another. Although some, no doubt, still have contracts on which they can specify, it is believed that new orders for substantial tonnages will develop early in the last half of the year.

Mill prices are: Mild steel bars, 2.35c. Pittsburgh, taking a freight rate of 27c. per 100 lb.; common bar iron, 2.50c. to 2.60c. Chicago, rail carbon, 2.45c. mill. Jobbers quote 3.37c. for steel bars out of warehouse.

Sheets.—Business is much improved. One mill recently booked an order for 1000 tons and orders for lots ranging from 300 to 500 tons are common. A foreign inquiry for 1500 tons is before the trade. Among purchasers are sheet metal workers, fabricators, light tank manufacturers, jobbers, etc. The weakness in sheets, which was so pronounced recently, is fast disappearing, and, while a few mills are still willing to shade, most makers are again holding to the prices established in March. One manufacturer in this district is now operating all its mills and has six weeks'

work ahead. While all grades of sheets are much firmer, galvanized has been the slowest in recovering.

Mill quotations are 4.35c. for No. 28 black; 3.55c. for No. 10 blue annealed, and 5.70c. for No. 28 galvanized.

Jobbers quote Chicago delivery out of stock: No. 10 blue annealed, 4.57c.; No. 28 black, 5.37c., and No. 28 galvanized, 6.72c.

Wire Products.—Not only are jobbers buying more heavily, but they are showing an increased disposition to contract for future needs, a development which indicates that lower prices are no longer expected and protection is desired against possible advances. The demand for small railroad spikes has increased as the result of greater activity in light rails. For mill prices, see finished iron and steel, f.o.b. Pittsburgh, page 1614.

Rails and Track Supplies.—Specifications have been received on over one-half of the 33,000 tons of rails allotted to the leading interest. An order has been received from Japan for 3500 tons of 45-lb. rails. The Chicago Union Station Co. has ordered \$50,000 worth of frogs and switches from an eastern mill. There is little activity in track fastenings, but business is expected to develop as a result of the Railroad Administration's recent order for 200,000 tons of rails.

Standard railroad spikes, 3.35c. Pittsburgh. Track bolts with square nuts, 4.35c. Pittsburgh. Steel tie plates and iron angle bars, 2.75c. Pittsburgh and Chicago; tie plates, iron, 2.75c. f.o.b. makers' mills. Light rails, 2.45c. f.o.b. makers' mills, with usual extras.

Bolts and Nuts.—The volume of business increases. Makers are showing a diminishing inclination to take contract business. Such contracts as are being made are largely with old customers, and in most cases they are being limited to 90-day purchases, although many desire to buy for six months' requirements. Several orders, running as high as 800,000 bolts, have been booked recently, and numerous carload lots have been sold. Mills are operating at about 75 per cent of capacity. For mill prices, see finished iron and steel, f.o.b. Pittsburgh, page 1614.

Structural rivets, 4.72c.; boiler rivets, 4.82c.; machine bolts up to $\frac{3}{4}$ x 4 in., 50 and 10 per cent off; larger sizes, 40 and 10 off; carriage bolts up to $\frac{3}{4}$ x 6 in., 50 and 5 off; larger sizes, 40 off; hot pressed nuts, square tapped and hexagon tapped, \$2 off; coach or lag screw, gimlet points, square heads, 50 and 10 per cent off. Quantity extras for nuts are canceled.

Cast-Iron Pipe.—That there is a better feeling in the market is evidenced by an increase in lettings and inquiries. Recent awards include:

Detroit, 2800 tons of 36 and 42-in. pipe to United States Cast Iron Pipe & Foundry Co.
Cleveland, 1000 tons to United States Cast Iron Pipe & Foundry Co.
Baker, Mont., 500 tons to National Cast Iron Pipe Co.
Elyria, Ohio, 300 tons to United States Cast Iron Pipe & Foundry Co.
Larimore, N. D., 200 tons to United States Cast Iron Pipe & Foundry Co.
Rochester, Minn., 53 tons to American Cast Iron Pipe Co.

Niles, Mich., will let 436 tons today and Detroit will award 2700 tons of 6- and 8-in. pipe and 475 tons of high pressure pipe tomorrow. Minneapolis will let 150 tons on June 10. Schererville, Ind., opened bids on 100 tons June 7. Hammond, Ind., will award 70 tons on June 11, and Saginaw, Mich., will receive bids on from 300 to 500 tons June 17.

We quote per net ton, f.o.b. Chicago, ex-war tax, as follows: Water pipe, 4-in., \$54.80; 6-in. and larger, \$51.80; class A and gas pipe, \$1 extra.

Old Material.—Although consumers are still hesitant about entering the market, foundries and steel mills are inquiring more extensively than they have for some time, and, in some cases, have made purchases. Typical of the renewed interest now being taken in old material is a recent sale by a dealer to a foundry from which he had not received an order since last October. Although it is believed consumers are preparing to buy extensively, the market is still largely confined to dealers. Activity among dealers, however, has resulted in advances in a number of items. Railroads which have issued lists include the Burlington, which is offering 3500 tons, the Great Northern and the Chicago & Eastern Illinois, which are offering 2000 tons each,

the St. Paul, 1500 tons, the Chicago, Indianapolis & Louisville and the Belt Railroad of Chicago 1000 tons each. Smaller lists have been issued by the Soo Line, the Omaha, the New York Central and the Michigan Central. The Chicago office of the Ordnance Department of the Army has considerable old material it expects to dispose of within the next month, including 40,000 tons of billets, 1500 tons of 82 mm. rounds, suitable for rerolling purposes and 80,000 tons of shell forgings, ingots and short billets. Bids will be received today on about 42,000 tons of the last-named material. The department reserved the right to reject the bids if they are not high enough.

Per Gross Ton

We quote delivery in buyers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Iron rails	\$21.00 to \$22.00
Relaying rails	35.00 to 45.00
Carwheels	20.50 to 21.50
Steel rails, rerolling	17.50 to 18.00
Steel rails, less than 3 ft.	17.50 to 18.00
Heavy melting steel	16.00 to 16.50
Frogs, switches and guards cut apart	16.00 to 16.50
Shoveling steel	15.75 to 16.25

Per Net Ton

Iron angles and splice bars	\$17.75 to 18.75
Steel angle bars	15.25 to 15.75
Iron arch bars and transoms	22.00 to 23.00
Iron car axles	26.50 to 27.50
Steel car axles	24.00 to 24.50
No. 1 busheling	13.50 to 14.00
No. 2 busheling	9.50 to 10.00
Cut forge	14.25 to 14.75
Pipes and flues	12.00 to 12.50
No. 1 railroad wrought	16.50 to 17.00
No. 2 railroad wrought	15.25 to 15.75
Steel knuckles and couplers	15.75 to 16.25
Coil springs	16.75 to 17.25
No. 1 cast	19.50 to 20.50
Boiler punchings	18.00 to 19.00
Locomotive tires, smooth	16.50 to 17.00
Machine shop turnings	5.50 to 6.00
Cast borings	9.00 to 9.50
Stove plate and light cast	16.00 to 16.50
Grate bars	15.00 to 15.50
Brake shoes	13.75 to 14.25
Railroad malleable	15.00 to 16.00
Agricultural malleable	15.00 to 15.50
Country mixed	11.00 to 12.00

Philadelphia

PHILADELPHIA, June 10.

Though tangible evidences of improvement in the steel situation are not numerous, it may be stated that the favorable factors now outnumber the unfavorable indications, the trend being clearly toward a better condition of trade. Inquiries are coming in more freely and for larger tonnages, and the willingness of a fair number of consumers to make contracts is regarded as a hopeful sign. Among inquiries of the past week were two for skelp totaling 2500 tons, one for 1000 kegs of spikes and one for 800 tons of rivet rods. These products have not been much in demand in this market during recent months, and the inquiries indicate a broadening of consumers' requirements.

Operations of steel plants are at a low point. Some plants are operating their open-hearth furnaces at not more than 25 to 35 per cent of capacity, but rolling mill operations are nearer 50 per cent.

Exporters have been hopeful of getting orders from England for steel products, but it seems difficult to consummate business owing to the import permit situation in that country. It is no longer difficult for the American steel trade to deliver steel in England at prices that compete with those quoted by British mills for home consumption.

The pig iron situation is becoming clarified. The high differential which has existed in this district as compared with other districts is being wiped out as sales become more numerous. Basic pig iron has been sold at \$25 and \$25.50, furnace, by a steel company, and makers of low-phosphorus iron are making much lower quotations, \$38 for copper-free and \$35 for copper-bearing iron now representing the market. Makers of foundry iron are making prices for second

half delivery which indicate their belief that the market will be much stronger during the latter part of the year. The scrap market also shows strength and prices are higher, though very little selling is being done.

Pig Iron.—Sales of basic pig iron have been made by a nearby furnace at \$25 and \$25.50, furnace, during the past week. It also seems fairly well established that an Eastern steel plant recently bought 5000 tons or thereabouts at \$25.50, delivered. We now quote basic iron at \$25.50 to \$26, delivered Philadelphia or vicinity, and sellers predict that this is the bottom for this year. Eastern Pennsylvania No. 2 X iron has been sold on contract for second half at \$30.10, delivered Philadelphia, though spot iron is obtainable at a lower price. The furnace which sold this iron has made a price of \$28.50, furnace, for No. 2 plain, and 50c. per ton higher for No. 2 X for delivery over the second half. It is reported that a Buffalo furnace sold a few hundred tons of No. 2 X iron for delivery in this territory at \$28.90, delivered, but this is not confirmed. Another Buffalo furnace interest which sells in this territory has announced a new schedule of prices for the rest of the year as follows: No. 2 plain, \$26.75 for delivery any time this year; No. 2 X (2.25 to 2.75 per cent silicon), prompt and third quarter, \$27; last half, \$27.25; fourth quarter only, \$28; for iron analyzing 2.75 to 3.25 per cent silicon, prompt and third quarter, \$27.50; last half, \$28; fourth quarter only, \$29.75; for iron analyzing 3.25 to 3.75 per cent silicon, prompt and third quarter, \$28; last half, \$29; fourth quarter only, \$31.75. All of these prices are f.o.b. furnace, the freight rate to Philadelphia being \$3.90. A Virginia furnace has sold nearly 20,000 tons of foundry iron for prompt and future delivery and has withdrawn from the market except for the next 60 days. This action is not due to being sold up, but to confidence that prices for iron in the second half will be higher. The leading Virginia producer has entirely withdrawn from the market, and still another Virginia furnace has named a price of \$31, furnace, for No. 2 plain iron, which is equivalent to withdrawing from the market, as prices on Virginia iron of \$25.50 for No. 2 plain and \$26.50 for No. 2 X are being made. There is considerable variation among furnaces as to the differentials charged for high-silicon iron above that asked for No. 2 plain. Inquiry for foundry iron is somewhat better than it has been during recent weeks, though there is still much to be desired to make an active market. The National Radiator Co. is in the market for 2500 tons of No. 2 plain and No. 2 X for delivery in second half. There are three inquiries for low-phosphorus iron totaling about 1600 tons and prices are being offered which are much lower than those which producers have recently been quoted. Copper-free iron is now obtainable at \$38, furnace, while some sales of copper-bearing iron have been made at \$35, furnace. The differential of \$3 between copper-free and copper-bearing iron will probably not be maintained under more active competition. In the absence of sales of gray forge \$28.50, delivered Philadelphia, is the nominal price, though it could be obtained at the price of basic, if not for less. We quote standard grades of iron for delivery in this district as follows, except that low-phosphorus iron is quoted f.o.b. furnace:

Eastern Penna. No. 2 X (2.25 to 2.75 sil.)	\$29.50
Eastern Penna. No. 2 plain (1.75 to 2.25 sil.)	28.50
Virginia No. 2 X (2.25 to 2.75 sil.)	30.60
Virginia No. 2 plain (1.75 to 2.25 sil.)	29.60
Basic	\$25.50 to 26.00
Gray forge	25.50 to 28.50
Standard low phosphorus (f.o.b. furnace)	38.00
Copper bearing low phosphorus (f.o.b. furnace)	35.00

Ore.—A shipment of 707 tons of manganese ore from Brazil, valued at \$21,144, was received at this port a few days ago.

Ferroalloys.—From a producer's viewpoint the market appears to be somewhat more hopeful because of the disappearance of offerings of resale lots of 78 to 82 per cent ferromanganese. A Buffalo furnace is offering a few hundred tons analyzing below 78 per cent, that from 75 to 78 per cent being priced at \$100 and below 75 per cent at \$97.50. A broker who received two or

three offers from consumers of \$105 for 78 to 82 per cent was unable to obtain the material. One resale lot of this grade is offered at \$110, f.o.b. shipping point. The Colorado Fuel & Iron Co. has inquired for 500 tons of 78 to 82 per cent. Producers still ask \$125 for this higher grade, with reductions of \$1.75 per unit below 78 per cent. Spiegeleisen is not in much demand, a few carloads only having been sold. Producers are asking \$35, f.o.b. furnace.

Billets.—A contract for forging billets for third quarter has been made by a local mill with a customer at \$51, Pittsburgh. It is reported, however, that some sales of forging billets are being made at the price of rerolling billets. We quote open-hearth rerolling billets at \$42.50, delivered Philadelphia.

Plates.—One leading seller of plates notes a change for the better, but this is not the general opinion of sellers, some of whom view the present plate situation rather pessimistically owing to the large amount of inactive capacity. There is still some weakness in prices, but a seller who recently made a price of 2.75c. base, Pittsburgh, reports some business on this basis. A few consumers have requested contracts, but the mills are not all desirous of entering into contracts except for a period of three months. However, one interest is reported to be making six months' contracts. The American Locomotive Co. has received an order from the Railroad Administration for 28 large locomotives, requiring about 1100 tons of plates. A part of these plates will be obtained from another locomotive company's surplus due to canceled contracts, and the remainder has been booked with two eastern Pennsylvania mills. Mills in this territory have quoted on 4000 tons of plates required by the Standard Oil Co. for a refinery in Texas. The Baldwin Locomotive Works is reported to be expecting several foreign orders for locomotives. This company is perfecting a world-wide selling organization. Among inquiries of the past week were one for 1500 tons and another for 1000 tons of skelp. We quote sheared plates ¼-in. and heavier at 2.895c., Philadelphia.

Structural Material.—A little better volume of small orders is about the only change noted in the structural steel situation. Several large buildings are being talked of, including hotels at Altoona, Pa., and Trenton, N. J., but no action has been taken. We quote plain material at 2.695c., Philadelphia.

Bars.—A fair business in steel bars is reported by one or two makers. Bar iron business is not active. Two of the largest bar iron mills are still closed by strikes. We quote soft steel bars and bar iron at 2.595c., Philadelphia. Double refined bar iron is 1c. per lb. higher.

Sheets.—A local mill is booking a better tonnage of blue annealed sheets and has been made to increase its operations slightly. Notwithstanding the selling of Nos. 10, 11 and 12 gage blue annealed sheets by a few mills on the plate base with plate extras, which has been going on for some weeks, sellers here have in a number of instances been able to get 3.55c., base, Pittsburgh. We quote No. 10 blue annealed sheets, 3.795c.; No. 28 black, 4.595c.; No. 28 galvanized, 5.945c., Philadelphia.

Bolts.—A Philadelphia shipbuilding company bought 1,200,000 bolts last week. Most of the business was placed at prices lower than those regularly quoted by producers, cuts varying from 5 to 30 per cent on different sizes.

Old Material.—Based largely on reported strength of the Pittsburgh market, the local scrap market has shown a pronounced upward trend. Mills are not buying, though one Eastern steel company has offered \$16, delivered, for No. 1 heavy melting steel. The strength of the market is due to the strongly optimistic ideas of dealers who refuse to part with their holdings at present prices because of a belief that the entrance of consumers into the market would add \$2 or \$3 a ton

to present quotations. We quote for delivery at consumers' works in eastern Pennsylvania as follows:

No. 1 heavy melting steel.....	\$16.00 to \$16.50
Steel rails, rerolling	18.00 to 18.50
No. 1 low phosphorus, heavy, 0.04 and under	22.00 to 23.00
Iron rails	22.00 to 23.00
Carwheels	22.00 to 23.00
No. 1 railroad wrought	21.00 to 22.00
No. 1 yard wrought	20.00 to 21.00
Country yard wrought.....	12.00 to 15.00
No. 1 forge fire	13.00 to 13.50
Bundled skeleton	13.00 to 13.50
No. 1 busheling	15.00 to 16.00
No. 2 busheling	13.00 to 14.00
Turnings (short shoveling grade for blast furnace use)	12.00 to 13.00
Mixed borings and turnings (for blast furnace use)	10.00 to 11.00
Machine-shop turnings (for rolling mill use)	12.00 to 13.00
Cast borings (clean)	12.50 to 13.50
No. 1 cast	22.00 to 23.00
Grate bars	17.00 to 18.00
Stove plate	17.00 to 18.00
Railroad malleable	18.00 to 19.00
Wrought iron and soft steel pipes and tubes (new specifications).....	17.50 to 18.50
Ungraded pipe	13.00 to 14.00

Cincinnati

CINCINNATI, June 10.

Pig Iron.—Business slowed down some last week, although quite a number of sales for both Northern and Southern foundry iron are reported. Among Northern foundry contracts is one for 1500 tons for last half shipment and two others for 1000 tons each for shipment before Oct. 1. Southern iron for prompt and third quarter shipment is being bought in 100 to 500-ton lots. Although the total of last week's business will not equal that of the previous week, Monday morning's mail brought in a large number of inquiries for foundry iron and also some for malleable. No interest is taken by either buyer or seller for iron for shipment in the first half of 1920. Several Southern furnaces are still willing to equalize freight rates, although some of them will not absorb more than \$1.50 a ton in order to obtain business. The National Enameling & Stamping Co. is inquiring for 15,000 tons of basic to be shipped to its plant near St. Louis. Ohio silvery irons are in excellent demand and the regular price schedule is being maintained. Lake Superior charcoal iron is selling in fair sized tonnages, mostly for third quarter delivery.

Based on freight rates of \$3.60 from Birmingham and \$1.80 from Ironton, we quote f.o.b. Cincinnati:

Southern coke, silicon, 1.75 to 2.25 (base price).....	\$28.35
Southern coke, silicon, 2.25 to 2.75 (No. 2 soft).....	29.60
Southern gray forge.....	28.35
Ohio silvery, 8 per cent silicon.....	42.05
Southern Ohio coke, silicon, 1.75 to 2.25 (No. 2).....	27.55
Basic, Northern	27.55
Standard Southern carwheel.....	51.60

Finished Material.—Although rumors are in circulation that the mills are figuring on an advance on wire nails, local jobbers reduced quotations last week 10c. per 100 lb., making to-day's quotation \$3.75 per keg. This was necessary on account of the fact that the Government sold in this territory recently a large lot of wire nails that it did not need for completion of the air nitrate plant at Ancor. Cold-rolled shafting is moving slowly, although two weeks ago it was in fair demand. Specifications for steel pipe are reported to be very good and there is also a better demand for reinforcing concrete bars, mostly for small quantities. Although there has been some shading in quotations on sheets in other territories, the nearby mills are still quoting No. 28 galvanized at 5.70c., Pittsburgh, with a freight rate of 23c. per 100 lb. to Cincinnati.

The following are present local jobbers' prices: Steel and iron bars, 3.33c. base; bands, 4.03c. base; structural shapes, 1.43c. base; plates, ¼-in. and heavier, 3.63c. base; No. 10 blue annealed sheets, 4.53c., and wire nails, \$3.75 per keg base.

High Speed Steel.—Selling agencies report business as moving along fairly well and locally some improvement may be noted. No change in the price of \$1.60 per lb. base on leading brands has been made.

Coke.—The market is showing more strength and some brands of Connellsville furnace coke that could be obtained two weeks ago at \$4 per net ton at oven are now being held at \$4.25. Foundry coke in that district is also stronger and the average price is now around \$5.50. Pocahontas and Wise County foundry coke is quoted at \$6 to \$6.50, and New River is stationary at \$7 to \$8. Some buying on the part of the foundries is in evidence for this year's shipment, but no contracts extending beyond Jan. 1 are reported.

Old Material.—There is a slight let-up in business, as it is stated the steel mills, who are the largest consumers, hesitate about paying the advanced prices. There is considerable Government owned scrap coming on the market, and it is understood that a number of large consumers in the Pittsburgh district are purchasing this direct. Cast borings are getting scarcer due to the recent slowing down of machine shop operations. All prices are unchanged and are held firm as quoted. The following are dealers' buying prices in carload lots, f.o.b. yards, southern Ohio and Cincinnati:

Per Gross Ton

Bundled sheet	\$10.00 to \$10.50
Old iron rails	22.50 to 23.00
Rerolling rails, 50 lb. and up.....	40.00 to 41.00
Rerolling steel rails	15.00 to 16.00
Heavy melting steel	13.50 to 14.00
Steel rails for melting	13.50 to 14.00
Old carwheels	16.50 to 17.00
No. 1 railroad wrought.....	14.50 to 15.00

Per Net Ton

Cast borings	\$6.00 to \$6.50
Steel turnings	5.50 to 6.00
Railroad cast	16.00 to 17.00
No. 1 machinery	17.50 to 18.00
Burnt scrap	11.50 to 12.00
Iron axles	23.00 to 23.50
Locomotive tires (smooth inside).....	14.00 to 14.50
Pipes and flues	12.00 to 12.50
Malleable cast	12.00 to 12.50
Railroad tank and sheet	9.00 to 9.50

Buffalo

BUFFALO, June 9.

Pig Iron.—The market is showing increasing strength and activity with such large inquiry that it would indicate the beginning of an old time buying movement, and buyers are apparently making haste to cover their requirements for the remainder of the year. In fact, there has been considerable inquiry for delivery extending into 1920. Furnaces are as yet, however, declining to make prices for such far forward delivery on account of the uncertainty as to costs and other conditions. Orders booked in the Buffalo district during the last week aggregate a large tonnage, probably 125,000 tons of all grades, and will possibly reach a total of 150,000 tons, foundry, malleable and basic—chiefly foundry and malleable. One furnace interest reports the sale of 12,000 tons of basic at \$25.75, and an equal quantity of foundry grades averaging 1.75 to 2.50 silicon content at the regular differentials of \$26.75 and \$28. This interest reports an aggregate inquiry of 30,000 tons, the larger percentage being for foundry grades. Another producer estimates its inquiry at 20,000 tons, with sales among others of 3000 tons of malleable at \$27.25 and 3000 tons of foundry, 2.25 to 2.75 silicon, at \$28. Another furnace interest estimates inquiry at about 35,000 tons, foundry and malleable, with sales of nearly the same amount. The Wickwire Steel Co. expects to put its No. 1 furnace into blast in three weeks and its No. 2 furnace in five weeks. Some furnaces report such heavy business that they have advanced their price schedule and are now asking even higher prices than the general schedule which furnaces as a whole adopted in March last, and say it is likely that even further advances will be made soon. There was some slight irregularity in prices the forepart of the week, occasioned by offerings of small lots of resale iron; but all furnaces have now stiffened and it will be difficult to find tonnage under the full schedule adopted in March. This schedule, under which prac-

tically all of the furnaces of the district are working, we continue to quote as follows, f.o.b. furnace, Buffalo:

No. 1 foundry, 2.75 to 3.25 silicon.....	\$29.75
No. 2 N, 2.25 to 2.75 silicon.....	28.00
No. 2 plain foundry, 1.75 to 2.25 silicon.....	26.75
Gray forge.....	25.75
Malleable, silicon not over 2.25.....	27.25
Basic.....	25.75
Basic, 1 to 1½ per cent manganese.....	26.25
Basic, 1½ to 2½ per cent manganese.....	26.75
Bessemer.....	27.95
Lake Superior charcoal, regular grades, f.o.b. Buffalo.....	\$2 35

Finished Iron and Steel.—Contracts continue to be made in good volume, largely covering hot rolled material for third quarter and some requests for contracts in wire products. Specifications are keeping up at about the same volume as for the previous week. Mill operations are being accelerated owing to the increase in business placed. A local mill is rolling about 2000 tons of bars on export order, operating two bar mills at 60 per cent of capacity. It is also operating its plate mill at about the same percentage of capacity, being engaged in rolling 2000 tons of plates for export on an order obtained last week. The Lackawanna Bridge Co., this city, has obtained a contract for the erection of a plant addition for the United States Alloys Corporation, Niagara Falls, requiring 200 tons of fabricated steel; also a contract for the erection of plant for the Lehigh Portland Cement Co. at Mitchell, Ind., requiring 400 tons. The threatened labor troubles in Toronto are proving less serious than was anticipated last week and users of steel products that had requested restrictions placed on export shipment to them have released them, considering the most serious part of the labor difficulties ended.

Prices f.o.b. Buffalo are as follows: Steel bars, 3.40½c.; iron bars, 4.10½c.; shapes, 3.50½c.; plates, 3.70½c.; No. 10 blue annealed sheets, 4.60½c.; No. 28 black, 5.65½c.; No. 28 galvanized sheets, 7.00½c. For "store door delivery" add 0.04½c. to each commodity.

Old Material.—The market is giving evidence of increasing strength and buoyancy and the situation for all commodities appears to be growing brighter and showing better inquiry. There is increased inquiry for heavy melting steel from outside districts and dealers think that indications point to higher prices. They are not selling readily, being inclined to hold stocks they have, confident that higher figures than now offered will soon prevail, some being of the opinion that the price will go to \$20 before long. Very little is being sold at the current price of \$17. Cast iron borings have advanced 50c. per ton and are now being held at \$11.50 to \$12.50; and \$8 to \$9 is now being asked for machine shop turnings. It is learned that 2000 tons of scrap shell material which had been stored at the J. J. Carrick shell manufacturing plant here has been sold by the Government to an Albany concern. About the first of last month, the Lackawanna Steel Co. purchased from the Government 11,000 tons of ingots, forgings, rounds and billets which had been stored at its plant at a price of \$15 per ton. About 20,000 tons additional of scrap material, which had been twice advertised for sale by the Government, comprising 9.2 ingots and forgings, 82-mm. rounds and 5½ in. billets, has been protested and a decision is being awaited from Washington as to whether the steel will be readvertised or the material awarded to the next bidder. We quote dealers' asking prices as follows, per gross ton, f.o.b. Buffalo:

Heavy melting steel, regular grades..	\$16.50 to \$17.00
Low phosphorus, 0.04 and under....	21.00 to 22.00
No. 1 railroad wrought.....	19.00 to 19.50
No. 1 machinery cast.....	22.50 to 23.00
Iron axles.....	23.00 to 24.00
Steel axles.....	23.00 to 24.00
Carwheels.....	21.00 to 22.00
Railroad malleable.....	18.00 to 19.00
Machine shop turnings.....	8.00 to 9.00
Heavy axle turnings.....	13.00 to 14.00
Clean cast borings.....	11.50 to 12.50
Iron rails.....	21.00 to 22.00
Locomotive grate bars.....	18.00 to 19.00
Stove plate.....	18.50 to 19.00
Wrought pipe.....	15.00 to 16.00
No. 1 busheling.....	13.00 to 14.00
Bundled sheet stamping.....	11.00 to 12.00

St. Louis

St. Louis, June 10.

Pig Iron.—The adjustment of southern iron prices to equalize the difference between freight rates from northern furnaces and the southern furnaces to St. Louis has during the past ten days developed something of a buying movement which has been for the most part confined to the third quarter, with a little for prompt shipment and some for the last quarter, although the furnaces are indisposed to take business so far ahead, in the belief that there will be better prices prevailing or at least a firmer market. The total buying is estimated as between 10,000 and 15,000 tons, and most of the purchases have been made by the stove concerns, which are more actively in need of material than any other interest. The general foundries are doing some business, but are protected by the iron in their yards or under contract and therefore are not doing any buying at present. The larger industries on both sides of the river are practically all shut down, or so nearly so as to put them out of the market as consumers for the present. At the same time, the general impression in the trade is that there will be an improvement shortly and that there will be an active business by fall. All are optimistic.

Old Material.—The scrap market has been without any marked feature during the week, and the lists put out by the railroads and other interests, as usual at the beginning of the month, have not had any very marked effect on the market. There is still an indisposition to do any trading, either short or long, and the dealers generally seem inclined to let well enough alone and at the same time to hang on to what they have to protect themselves against the future. The feeling as to the future is optimistic, however, and there is a general belief with the scrap trade that the market will show increasing activity from now on, though no sudden spurt is looked for. We quote dealers' prices, f.o.b. customers' works, St. Louis industrial district, as follows:

Per Gross Ton	
Old iron rails.....	\$21.50 to \$22.00
Old steel rails, rerolling.....	17.00 to 17.50
Old steel rails, less than 3 ft.....	16.00 to 16.50
Relaying rails, standard sections, subject to inspection.....	34.00 to 37.00
Old carwheels.....	19.50 to 20.00
No. 1 railroad heavy melting steel..	15.00 to 15.50
Heavy shoveling steel.....	13.00 to 13.50
Ordinary shoveling steel.....	12.50 to 13.00
Frogs, switches and guards, cut apart.....	15.00 to 15.50
Ordinary bundled sheets.....	8.50 to 9.00
Heavy axle and tire turnings.....	9.50 to 10.00
Per Net Ton	
Iron angle bars.....	\$15.50 to \$16.00
Steel angle bars.....	13.00 to 13.50
Iron car axles.....	26.50 to 27.00
Steel car axles.....	21.50 to 22.00
Wrought arch bars and transoms....	19.50 to 20.00
No. 1 railroad wrought.....	15.00 to 15.50
No. 2 railroad wrought.....	13.50 to 14.00
Railroad springs.....	13.00 to 13.50
Steel couplers and knuckles.....	14.00 to 14.50
Locomotive tires, 42 in. and over, smooth inside.....	15.00 to 15.50
No. 1 dealers' forge.....	10.50 to 11.00
Cast iron borings.....	8.00 to 8.50
No. 1 busheling.....	13.00 to 13.50
No. 1 boiler cut to sheets and rings..	10.50 to 11.00
No. 1 railroad cast.....	19.50 to 20.00
Stove plate and light cast.....	14.50 to 15.00
Railroad malleable.....	13.00 to 13.50
Pipes and flues.....	12.00 to 12.50
Heavy railroad sheet and tank.....	10.50 to 11.00
Railroad grate bars.....	12.00 to 12.50
Machine shop turnings.....	7.00 to 7.50
Country mixed.....	11.50 to 12.00
Uncut railroad mixed.....	12.50 to 13.00
Horseshoes.....	16.00 to 16.50

Finished Iron and Steel.—In finished products the mills are selling some material through their representatives, but nothing in the way of large contracts is being put over. However, a better feeling is reported by the representatives, and as soon as construction, which is now being prepared for, gets under way, more buying will come through of the mill order size. Prices are still being held at the last agreement figures and mills show no disposition to make any changes. Ware-

houses report a better business during the past few days, with purchases evidently made for work under way and running into quite satisfactory aggregates, considering present conditions. The buying is being done mostly by those who do not care to enter into future contracts, but who have work on hand which they are pressing forward to completion. For stock out of warehouse we quote as follows:

Soft steel bars, 3.44c.; iron bars, 3.44c.; structural material, 3.54c.; tank plates, 3.74c.; No. 8 blue annealed sheets, 4.59c.; No. 10 blue annealed sheets, 4.64c.; No. 28 black sheets, cold rolled, one pass, 5.44c.; No. 28 galvanized sheets, black sheet gage, 6.79c.

Coke.—While some contracts have been and are being made for domestic coke for fuel, this being the period of contracting for last half delivery in that division of the market, there has been no call for metallurgical coke, as foundries are well covered by supplies on hand or under contract. However, it is thought there will be some buying later in the month, as there are many contracts due to expire with the end of June which will come up for renewal for another year.

Birmingham

BIRMINGHAM, ALA., June 9

Pig Iron.—Birmingham pig iron is now on a basis of \$24.75. That is openly quoted by the company reporting the greatest amount of newly booked business. Another furnace interest, which is increasing its capacity by additional active stacks, admits a basis of \$25 to \$25.50. Still a third, which has also been selling, says it is a \$25.25 market. The largest foundry interest is making special deals with its customers satisfactory to both sides. The leading interest, which consumes the greater part of its own metal and is not largely in the general market, quotes \$26.75 and that price is a bar to business. The Woodward Iron Co., until recently had shut down at all five stacks, then it blew in first one, then another stack at Woodward and has resumed at the small Vanderbilt furnace, also, after booking considerable business for June and July and third quarter delivery and reducing costs by wages and other adjustments. The Sloss-Sheffield Steel & Iron Co. will keep at least two stacks in blast. One has sold its present capacity for three months ahead besides taking up yard accumulations and reports that twice as much business could have been booked if last half and fourth quarter business had been considered. All interests deny selling beyond third quarter. A company with one active stack booked 10,000 tons in May and the first week of June. Export inquiry from Scandinavian countries and Great Britain is encouraging and with additional reduction in ocean rates, a considerable foreign movement may be expected. Some ocean room as low as \$15 has been offered. The Connors-Weyman Steel Co. has resumed at its Woodlawn steel hoop and tie mill and continues operations at Helena. Distinct improvement in the steel market is reported with Ensley and Fairfield mills feeling the effect. The new market level, made in order to offset the freight differential between Chicago and Birmingham to St. Louis territory, has been also made the Southern price for the benefit of the Southern consumers. The general market tone is buoyant and increase in production is foreshadowed. We quote per gross ton f.o.b. Birmingham district furnaces:

Foundry, 1.75 to 2.25 silicon.....	\$24.75
Basic	23.75

Cast Iron Pipe.—The pipe market takes on additional strength and the volume of business grows. Southern and Southwestern communities are either booking or sounding the market and the sanitary pipe trade is also picking up measurably.

Coal and Coke.—Both coal and coke are stronger. Prices tend upward, especially in the case of domestic coal. Where a short time ago the active foundry coke ovens experienced difficulty in prompt disposal of output, the difficulty now is to supply the demand. The price remains at \$8.

Old Material.—The scrap men are taking on stocks in anticipation of increased demand and higher prices

for some grades. Increasing foundry activity is strong, suggesting that hopes will be realized. Very little wrought is moving, but cast and stove plate are fairly active. We quote per gross ton f.o.b. Birmingham district yards, prices to consumers, as follows:

Steel rails	\$12.00 to \$14.00
No. 1 heavy steel.....	12.00 to 13.00
Cast iron borings.....	6.50 to 7.50
Machine shop turnings.....	6.50 to 7.50
Stove plate	15.00 to 16.00
No. 1 cast	20.00 to 22.00
Carwheels	20.00 to 22.00
Tramcar wheels	20.50 to 22.00
Steel axles	18.00 to 20.00
No. 1 wrought	12.50 to 13.00

San Francisco

SAN FRANCISCO, June 3.

Although the jobbing trade for materials is showing more activity, the trade as a whole is still quiet on the Coast and according to the best informed opinion there can be no marked improvement until Congress makes its appropriations and the treaty of peace is signed and ratified. The shipyards are especially anxious about Congressional appropriation for a continuation of the work in the shipyards.

There is little change in the labor situation, except that since the Saturday half holiday has been adopted about one-third of the foundries have closed down entirely on that day, stating that it does not pay them to run for half a day. This is irritating to the men and there is some agitation for a 5-day week on the equivalent pay formerly given for six days' work. While this has not taken a serious aspect as yet, if more foundries fall into line, closing all day Saturday, it is apt to spur the men to action.

The foundries have less work offered them than a few months ago, and there is a tendency to cut prices for all foundry work. It is said that practically all the foundries are doing this, and that the practice has not developed any new business.

Finished Material.—There is demand for a number of small lots of re-inforcing bars for concrete structures in the interior of the State, and some small shipments across the water have been made, notably to the Hawaiian islands. Some inquiry for foreign shipments is also reported. On the other hand, the mills do not find the demand sufficient to run more than from a third to half capacity. Plates are dull and the largest order in sight is a prospective one from the city of Oakland, the trustees of which have ordered the mayor to get bids for plates for steel tanks of 100,000 gallons capacity. The city is planning a series of these tanks and will soon call an election to vote bonds for them. Jobbers report a fair demand for galvanized sheets in the interior of the State, but no large job has been announced. Increased inquiry and orders for wrought pipe reflect a real demand. A good many of these are reported, but individually they are small and are evidently for pipe needed to tide over emergencies.

Cast-Iron Pipe.—The cast-iron pipe situation is showing improvement. Bids have recently been called for at Florence, Ariz., Phoenix, Ariz., and Anaheim, Cal. These amount to nearly 30,000 ft. of 4, 6, 8 and 12-in. pipe for municipal work. Antioch, Cal., is calling for bids on 4000 ft. of 4-in. pipe to be opened June 2. The oil refining companies are taking some pipe for their condensers and considerable inquiry has been received with some orders from private corporations.

Pig Iron.—Pig iron is quiet. While there is not a great deal of demand, cutting of price is said to be prevalent.

Coke.—There is no change in the coke situation. With the restriction of output at the foundries, there is no demand.

Old Material.—Some of the scrap recently sold by the Southern Pacific is said to have been sold for export to Japan, but no record of any of it having been shipped is available. Some of the scrap dealers insist that they have orders from Japan, but this statement is doubted by the large consumers. At present the mills are offer-

ing from \$12 to \$14 per gross ton for heavy milling scrap, but dealers deny that they are selling at this price. However, the mills appear to be getting enough scrap to take care of all their needs.

New York

NEW YORK, June 10.

Pig Iron.—Increase in buying by many melters has brought a distinct improvement in the tone of the market, and in some cases higher prices are being asked. Many sellers are expressing the opinion that there will be a general advance in prices. Buyers, while admitting that there is not as much shading as there was, still believe that it is a time for caution, and are not rushing into the market. However, the buying represents a wide range of interests, the foundries which have been or are now in the market being connected with many different kinds of manufacturing. Reports as to Buffalo iron indicate much activity in that section, where there has been considerable price cutting, and it is by no means certain that the period of price concessions has passed, but on the whole the Buffalo situation seems to be stronger. One important interest which had a schedule of \$27.50 for No. 2 X for last half and \$28 for last quarter has advanced its quotations, but on the other hand a limited tonnage of No. 1 foundry can still be had at \$27. A sale of 3500 tons of foundry iron has been made to a New England consumer. An inquiry for 20,000 tons of basic for delivery in Wales was the principal development in the export market. A few inquiries extending into 1920 have appeared, but no quotations have been made for delivering after Jan. 1. We quote as follows, delivered New York, for Northern and Southern grades, quotations on the latter being nominal:

No. 1 foundry, silicon, 2.75 to 3.25.....	\$31.55 to \$31.80
No. 2 X, silicon, 2.25 to 2.75.....	29.80 to 30.80
No. 2 plain, silicon, 1.75 to 2.25.....	28.55 to 29.80
No. 2 X, Virginia, silicon, 2.25 to 2.75.....	31.40 to 31.90
No. 1 Southern, silicon, 2.75 to 3.25.....	32.45
No. 2 Southern, soft (all rail), sil., 2.25 to 2.75.....	30.70
No. 2 Southern (all rail), sil., 1.75 to 2.25.....	29.45

Ferroalloys.—The domestic ferromanganese market seems stronger than in some time. It is believed that nearly all of the resale alloy and also all lower grades have been disposed of. If any small amounts are still available higher prices are being asked. The standard American alloy is quoted at \$125, delivered, with the British product obtainable at \$121, seaboard. Inquiries for small lots ranging up to 300 tons are reported for both prompt and nearby delivery but few sales have yet been noted. The spiegeleisen market is quiet at \$27 to \$30, furnace, depending upon the grade desired and the delivery.

Finished Iron and Steel.—Not a measurable increase in new buying marks the further betterment of sentiment in selling circles, but common request from consumers of steel for contracts. Several weeks ago few buyers could be found who would even discuss a contract. Export inquiries are numerous. Included among these are one for 5000 tons of billets for France and about the same tonnage for Italy and about 6000 tons for Belgium. Exporters do not look for early settlement on these items. The Algoma Steel Corporation has, however, sold 8000 tons of rails to Belgium at about \$77, delivered. Japan is in the market for another 10,000 tons of rails, but it is not clear that total purchases on the present movement are 50,000 or 60,000 tons. A large sale of shipbuilding material for Japan was lately canceled when negotiations were about completed, owing doubtless to the cancellation on the part of France of some ships to be built in Japan. Some sizable contracts have been signed for domestic shipbuilding purposes and at the prevailing price of 2.65c., Pittsburgh. Some of the claims of cutting work back to a mill which can utilize water transportation and sell on a f.o.b. mill basis and at the general Pittsburgh quotation, the buyer thus getting also advantage of his

location. The West India Oil Co. is in the market for 70 tank cars and the long discussed Jersey City pipe line, involving 6000 to 7000 tons of plates, is now again under active negotiation. A transfer of 28 locomotives for the Railroad Administration has been made from the Baldwin works to the American Locomotive Co. and the plates will be supplied by the mills at the present price instead of the war period price, or a reduction to the Government of \$12 per ton. In the structural field Government needs rank high, including about 1500 tons for extensions for an aircraft storage building, League Island Yard; 1000 tons for 12 warehouses at Quantico, Va., and 200 tons for a transfer bridge at Hampton Roads; it is expected that the Bureau of Yards and Docks, Navy Department, will take all told 3500 tons in the Brooklyn yard and about 1250 tons for a structural shop at the Boston yard. For the rolling mills for the Scullin Steel Co., St. Louis, 1000 tons are in the market. Of the apartment house movement mention may be made of the closure on an Axlerod project on West Seventy-second Street, taking 600 tons. Some 3000 tons have been awarded for oil tanks for the Humble Oil & Refining Co. We quote mill shipments as follows: Bar iron, refined grade, 2.62c.; double refined bar iron, 3.62c.; soft steel bars, 2.62c.; shapes, 2.72c.; plates, 2.92c.; all New York.

Warehouse Business.—Intermittent good and slack business is the prevailing market condition. Inquiries are in somewhat larger volume; but buying as a rule is confined to absolute necessities. Such material as is ordered is generally wanted for spot delivery. So far June transactions average no greater than during the preceding month; and warehouse men are not inclined to predict any rapid increase in trade through the summer. The conviction that the immediate future holds some good business in store for them is, however, equally widespread. In sheets the adherence to price schedules is reported not uniform as regards the lighter gages of both black and galvanized sheets. It is anticipated that the middle of the month will see revised discounts on bolts and nuts, etc., by the leading interest, the cost advancing slightly to the consumer. List net is being quoted on cold-rolled shafting and cold-drawn bars, and this level, it is stated, will be firmly held. Other out of store prices are as follows: No. 10 blue annealed sheets, 4.57c.; No. 28 black sheets, 5.37c.; No. 28 galvanized sheets, 6.50c.; steel bars, 3.37c.; structural shapes, 3.47c.; plates, 3.67c.; bands 3/16 in. No. 10 and 12, 4.07c.

High-Speed Steel.—Buying for the present is so limited that there is practically no market. Large users in some cases have such heavy stocks that on certain sizes they will be out of the market indefinitely. Only manufacturers who bought sparingly during the war are now coming forward for their normal requirements. For special sizes needed for some particular job, orders are rarely for more than one bar and may be for a 1-ft. length or even for bits. We quote the average price \$1.60 per lb.

Cast-Iron Pipe.—The cast-iron pipe market shows more activity than for many months. Boston is in the market for 1200 tons ranging from 8 to 24 in., and will receive bids Thursday, while Dartmouth, Mass., will receive bids Wednesday on 850 tons of 6, 8 and 10-in. pipe. There is also a considerable volume of inquiries for smaller tonnage. Owing to the departure of many laborers for the Old World, cast iron pipe shops are fearing that there will be a shortage of labor. We quote New York prices as follows: 6-in. and heavier, \$52.70; 4-in., \$55.70; 3-in., \$62.70, and \$1 additional for class A and gas pipe.

Old Material.—Prices are tending upwards, but they are caused by buying of dealers for speculative purposes, rather than by purchases by mills and foundries. The conservative are pointing to the situation at the last of March, when the steel manufacturers had agreed upon the level of prices, which was followed by a temporary rise of scrap prices with a subsequent fall. They are suggesting that the present rising tendency may ex-

perence the same reverse and that the real market has not been elevated. Heavy melting steel seems to be the leading item in sales volume; there is a fair demand for pipe; the demand for cast has fallen off. Brokers are of the opinion that the increasing amount of Government scrap is keeping the market down, nearly 800,000 tons being reported by Washington as on hand June 1. Brokers' and dealers' buying prices, New York, follow:

Heavy melting steel	\$12.00 to \$12.50
Revolving rails	16.00 to 16.50
Relaying rails, nominal	39.00 to 41.00
Steel car axles	20.50 to 21.50
Iron car axles	25.00 to 26.00
No. 1 railroad wrought	19.00 to 19.50
Wrought iron track	13.50 to 14.50
Forge fire	8.00 to 8.50
No. 1 yard wrought, long	16.00 to 17.00
Light iron	5.50 to 6.00
Cast borings (clean)	8.50 to 9.00
Machine shop turnings	8.50 to 9.00
Mixed borings and turnings	7.00 to 7.50
Iron and steel pipe (1 in. minimum diameter) not under 2 ft. long....	13.50 to 14.00
Stove plate	15.00 to 15.50
Locomotive grate bars	15.00 to 15.50
Malleable cast (railroad)	14.00 to 14.50
Old carwheels	20.00 to 20.50

Prices which dealers in New York and Brooklyn are quoting to local foundries, per gross ton, are:

No. 1 machinery cast	\$21.00 to \$21.50
No. 1 heavy cast (columns, building materials, etc.), cupola size	20.00 to 20.50
No. 1 heavy cast, not cupola size	14.00 to 15.00
No. 2 cast radiators, cast boilers, etc.	16.50 to 17.00

Cleveland

CLEVELAND, June 10.

Iron Ore.—While activity in the ore market has hardly developed to an extent that it can be called a buying movement, there are indications that it will reach that point in a few days. Both sales and inquiries increased materially during the week. One ore firm reports sales aggregating 325,000 tons, about two-thirds of which was Bessemer ore. Other sales include 90,000 tons of basic ore purchased by an Eastern consumer and several other inquiries from the East are pending. Some of the Eastern trade are now taking shipments of ore on long-time contracts. Lake shipments have increased this month. At least one of the large sellers is now making heavy shipments to take care of the requirements of its own blast furnaces, and will try to get its ore down as soon as possible, anticipating a vessel shortage when grain begins to move in the early fall. A scarcity of dock space late in the season is not improbable owing to the fact that the Steel Corporation, which has been making heavy shipments since the opening of the season of navigation to build up its ore reserve, is placing ore on both its own docks and merchant docks. Complete returns from the shipping docks show an ore movement during May of 6,615,341 gross tons, making a total of 8,027,500 tons to June 1, as compared with 9,028,101 tons for the same period a year ago. May shipments were 2,196,890 tons less than during the same month last year. Ore prices delivered f.o.b., lower Lake ports, are as follows:

Old range Bessemer, \$6.45; old range non-Bessemer, \$5.70; Mesaba Bessemer, \$6.20; Mesaba non-Bessemer, \$5.55.

Pig Iron.—The demand for pig iron continues to grow more active. While sales are mostly in foundry grades, two inquiries came out during the week for steel-making iron, one for West Virginia for 4000 tons of basic for June and July, and another from the St. Louis territory for 5000 tons of basic for the third quarter and 10,000 tons for the last half. One Cleveland interest reports sales during the week aggregating 25,000 tons and another 12,000 tons. These range from car lots to 1000 tons in foundry iron and include 3000 tons of malleable iron taken by a Pennsylvania melter for the fourth quarter. One inquiry has come from southern Ohio for 3000 tons of foundry iron for the last half, and several consumers are in the market for lots up to 1500 tons. The local market is firm. However, there are still occasional reports of slight concessions being made by southern Ohio furnaces to overcome a freight disadvantage for shipments to com-

petitive points in central Ohio, and there is also an occasional report that some producer is making a little concession to absorb part of the freight or on the silicon differential. No change has developed in the price situation in respect to Alabama iron. At least one producer is offering to absorb the entire freight rate of \$5 less the local switching charge of 40c. on Southern iron 2.25 to 2.75 and higher in silicon, but other producers are not willing to meet the Northern delivered price, and are absorbing only \$2 or \$3 of the freight. Some activity has developed in Ohio silvery iron. Sales of several car lots of 6 per cent silvery iron for early shipment, and 125 tons of 7 per cent silvery for the last half are reported at regular price. Some resale silvery iron is being sold at about 50c. per ton under the market, but resale iron has now been pretty well cleaned up. The demand for low phosphorus iron has improved, but prices are weak. Considerable resale iron is on the market and is bringing low prices. We note sales at \$42 for copper-free iron and \$38 for copper bearing iron, but a round lot inquiry would probably bring out a \$40 price for the standard grade. A Toledo inquiry for 750 tons is still pending. We quote delivered Cleveland, as follows:

Bessemer	\$29.35
Basic	27.15
Northern No. 2 foundry, silicon, 1.75 to 2.25	27.15
Southern foundry, silicon, 2.25 to 2.75	28.40
Gray forge	26.15
Ohio silvery, silicon, 8 per cent	42.65
Standard low phos., Valley furnace	45.75

Coke.—Several of the leading producers have opened their books for foundry coke contracts for the last half at \$5.25 for standard Connellsville makes. Some business is being taken at that price. We note the sale of 750 tons of Wise County, West Virginia, coke at \$7.50 at oven for delivery during a period of 9 months. This price is subject to increase or decrease, should any change be made in wages.

Bolts, Nuts and Rivets.—The demand for bolts and nuts has improved somewhat, and some makers are beginning to take contracts for the third quarter. Prices in this market are apparently firm. Rivet specifications from shipyards and car companies are coming out in better volume, and many consumers are placing contracts for the third quarter at regular prices.

Finished Iron and Steel.—The demand for finished iron and steel is growing heavier. Consumers are contracting quite freely for steel bars, plates and shapes for the third quarter, and some of the mills that have been refusing to take contracts beyond that delivery are now covering their trade with steel bar contracts for the entire last half. Some current orders for plates and shapes in lots up to 500 tons have come out. An Eastern mill that recently advanced its plate price to 2.75c., mill, making the Cleveland delivered price nearly \$5 above the regular delivered price, is now quoting 2.75c., Pittsburgh, for Western shipment, and is booking considerable business in boiler plates at the \$2 advance over regular prices. A heavy demand for alloy steel has developed from the automobile field. One consumer has contracted for 4000 tons for the remainder of the year. Among inquiries is one for 2500 tons of blooms and 600 tons of billets and bars. In structural lines the Whitehead & Kales Iron Works, Detroit, has taken 1000 tons for the new plant of the Detroit Seamless Tubes Co. The Goodyear Tire & Rubber Co., Akron, has received bids for 2000 tons for a factory extension, and the Cleveland Metal Products Co. will build a plant extension requiring 500 tons. The demand for hard steel bars for reinforcing purposes continues active, but some shading of the regular 2.25c. price has developed, sales being made at as low as 2.10c. and 2.15c. The National Fireproof Concrete Co., Cleveland, has taken a contract for the Racine Building in Cleveland, requiring 500 tons of reinforcing bars. The demand for sheets, which has been rather light outside of finished sheets for automobiles, has become more active. Black and galvanized sheets are being shaded, reports indicating that some mills have cut prices \$4 per ton. Other makers, however, report that they have no trouble in getting regular prices. One Valley mill

that has been selling Nos. 7 to 12-gage blue annealed sheets on the plate basis to meet the competition of mills making unannealed sheets is now adhering to regular prices on all gages of blue annealed sheets. Warehouse prices are as follows:

Steel bars, 3.27c.; plates, 3.57c.; structural shapes, 3.37c.; bands and hoops, 3.97c.; No. 10 blue annealed sheets, 4.47c.; No. 28 black sheets, 5.27c.; No. 28 galvanized sheets, 6.62c.

High-Speed Steel.—The demand for high-speed tool steel is light, and prices are a little easier. Some mills that have been adhering to the \$1.60 price are now quoting this steel at \$1.50, a price that has been named for some time by one maker.

Old Material.—The scrap market is stronger and somewhat more active although the activity is confined largely to heavy melting steel. A Cleveland mill during the week purchased a round tonnage of heavy steel scrap, some at \$17.50 and the remainder at \$18. Dealers are paying \$17 for this grade for Canton delivery. Other local mills are in the market for heavy steel scrap, but are reported to be offering only \$16 to \$16.50. Other grades have advanced somewhat, but not to the same extent, as heavy steel scrap. Sales of turnings are reported at \$9.50, and these are being freely offered at \$10. Sales of shoveling turnings are reported at \$10.50. Borings are inactive in Cleveland, but this grade is quoted at around \$11 for Valley delivery. Offerings of \$23 for cast scrap and \$19 for stove plate are reported. We quote delivered consumers' yards in Cleveland and vicinity as follows:

Heavy melting steel.....	\$17.50 to \$18.00
Steel rails, under 3 ft.....	15.75 to 16.00
Steel rails, rerolling.....	17.00 to 17.50
Iron rails.....	23.00 to 24.00
Iron car axles.....	29.50 to 30.00
Steel car axles.....	27.50 to 28.50
Low phosphorus melting scrap.....	16.25 to 17.00
Cast borings.....	10.50 to 10.75
Iron and steel turnings and drillings.....	9.50 to 9.75
Compressed steel.....	13.50 to 14.00
No. 1 railroad wrought.....	17.00 to 17.50
Cast iron carwheels.....	22.00 to 22.50
Agricultural malleable.....	14.00 to 15.00
Railroad malleable.....	17.00 to 18.00
Steel axle turnings.....	13.50 to 14.00
Light bundled sheet scrap.....	11.00 to 11.50
No. 1 cast.....	22.50 to 23.00
No. 1 bushelling.....	13.75 to 14.25
Drop forge flashings, 10 in. and under.....	13.00 to 13.50
Drop forge flashings, over 10 in.....	9.50 to 10.00
Railroad grate bars.....	16.50 to 17.00
Stove plate.....	18.50 to 19.00

British Iron and Steel Market

Pig-Iron Output Below Requirements—Coal Situation Serious—Belgian Rail Order (By Cable)

LONDON, ENGLAND, June 9.

The pig-iron market is firm, but the output is far below requirements. Prices are unchanged. Scottish furnaces are in a very serious position, owing to a deficiency of ore supplies.

Buying of steel is restricted. South Wales open-hearth steelmakers officially state that the cost of producing sheet bars has increased £8 per ton since 1914.

The situation as to coal is very grave, the output per head falling steadily. With 7 hr. per day from July 16 the annual output will probably be 214,000,000 tons, against 287,000,000 tons in 1913. Domestic prices will probably be advanced 4s. 6d. (\$1.05) per ton to meet the cost of the shorter hours. Coal exports must be greatly diminished and the restrictions maintained on domestic consumption.

The new demands of the Welsh tin-plate workers involve an increase of 3s. 9d. (88c.) per base box. Negotiations are proceeding. The order for oil size plates (referred to in last week's cable) involved 350,000 boxes. The Belgium Government has bought 40,000 tons of heavy rails from Belgium works at 500 fr. (\$77.50).

The German pig-iron production for April was 434,-

000 metric tons, against 546,000 tons for March and 469,000 tons for February.

We quote per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalents figured at \$4.60 for £1:

Pig iron:	£	s.	d.	£	s.	d.		
East Coast Bessemer.....	9	10	0	to	9	12	6	\$43.70 to \$44.28
West Coast Bessemer.....	9	5	0	to	9	10	0	42.55 to 43.70
Cleveland No 3 foundry	8	0	0	to	8	5	0	36.86 to 39.10
Cleveland basic	8	5	0	to	8	10	0	37.95 to 38.10
Coke (Durham):								
Furnace	1	19	0					8.97
Foundry	2	4	0					10.12
Ferromanganese	25	0	0					115.00
Billets	14	10	0	to	14	15	0	66.70 to 67.85
Tin plate and sheet bars.....	13	15	0	to	14	0	0	63.25 to 64.40
Rails, 60 lb. and upward	15	0	0	to	15	5	0	69.00 to 70.15
								Cents per lb.
Steel bars	19	0	0	to	20	10	0	3.90 to 4.20
Large rounds, etc.....	17	2	6	to	18	10	0	3.51 to 3.70
Structural material	16	10	0	to	17	0	0	3.38 to 3.49
Plates	17	10	0	to	17	15	0	3.59 to 3.64
Plates, boiler	19	10	0					
Bar iron	20	10	0	to	21	0	0	4.20 to 4.31
Tin plates, 14 x 20, coke	13	0						\$7.60
112 sheets, 108 lb., f.o.b. Wales.....								

(By Mail)

Less Prospect of Lower Prices—Demand for Export Iron—New Combinations

LONDON, ENGLAND, May 26.—There are at present few signs of any lower figures ruling in iron and steel anywhere in the near future. Business is gradually opening out in foreign ore as the consumers' stocks diminish, and there are indications that an active resumption will be seen before long. The f.o.b. prices show an upward tendency and it is reported that sellers of best Bilbao rubio are quoting as much as 46s. 6d. (\$10.80) on a 17s. freight basis, which compares with the old control price of 43s. 6d. (\$10). Meanwhile iron masters are no longer holding out for the old 17s. freight rate, and are willing to pay the present market rate.

In pig iron an eager market continues, particularly for foundry, the supplies of which are inadequate. It is hoped, however, to put more furnaces in blast before long. Business in the Cleveland district has been fairly quiet, but this is solely because the supplies of iron fall short of requirements, and prices of No. 3 Cleveland are now fully 20s. (\$4.65) a ton over the price which was originally arranged as a minimum to rule from May 1. Buyers are now glad to obtain supplies at 160s. (\$37.15). Steelmaking iron is also scarce and East Coast hematite is difficult to secure for early deliveries, while for June delivery 190s. is quoted for mixed numbers.

In finished iron and steel there is plenty of work now, but makers show some caution as to booking orders more than a comparatively short period ahead on account of the uncertainties of cost. Employment last month at the iron and steel works is stated officially to have been good on the whole. A scarcity of some kinds of labor, especially puddlers and millmen, was reported, particularly in Scotland, while inadequate supplies of fuel and raw material were mentioned in many cases. Ship plates for home and export are strong, the export price being about 20s. over the home figure, and there has also been a well-maintained demand for rails. As to structural steel the market is rather quiet. Considerable difficulty is experienced in securing tank plates for export, and when an offer is made the figure is high, ranging up to £23.

The production of iron and steel in the United Kingdom during the week ended April 26 is given by the Ministry of Munitions as 147,000 tons of pig from 291 furnaces in blast, and that of steel ingots and castings 106,000 tons. It is reported that there has been a considerable improvement in the labor situation on the Tyne, and that in the populous district stretching along the river from Hexham to Tynemouth the total unemployed is now about 7000 men and 5000 women.

The scrap iron market, so far as South Wales is concerned, seems to be passing through a temporary period of quietness, particularly with reference to steel

scrap owing to large quantities having been received by local works. A steamer discharging at Llanelly has a cargo of German steel helmets for melting up at the steel works. A big steel and tin-plate deal has just been arranged, the Grovesend Steel & Tinplate Co. having purchased the Bryngwyn Steel & Tinplate Co., W. Lewis & Co.'s works, and the Cambrian Tinplate Works at Gorseinon near Swansea. The purchase price for the whole is stated to approximate £250,000. It is stated that this foreshadows more combinations among steel and tin-plate works.

IRON AND INDUSTRIAL STOCKS

Increased Money Rates Cause Sharp Decline Followed by Recovery

NEW YORK, June 9.

Quotations, under the pressure of high money rates, suffered their first severe decline last Tuesday since the gradual rise beginning Feb. 10, covering an average advance in that period of nearly 30 points on industrials and 9 points on rails. Further high prices, however, were reached by many issues following a general recovery on Wednesday. Price movements the rest of the week were irregular.

The range of prices on active iron and industrial stocks from Tuesday of last week to Wednesday of this week was as follows:

Allis-Chalm. com. 43 1/4-46 1/4	La Belle Iron, cm. — -106
Allis-Chalm. pf. 95 1/2-96 1/2	La Belle Iron pf. — -120
Am. Can. com. 56 1/2-59 1/2	Lake Sup. Corp. 19 1/4-20 1/4
Am. Can. pf. 105-106 1/2	Lima Loco. 52-55
Am. Car & F. cm. 104 1/4-108 1/2	Midvale Steel 50 1/4-53 1/4
Am. Car & F. pf. — -117	Nat-Acme 36 1/4-36 1/2
Am. Loco. com. 82 1/4-85 3/4	Nat. En. & St. cm. 69 1/2-88
Am. Loco. pf. 107 1/2-108 1/2	Nat. En. & St. pf. — -102
Am. Ship com. — -129 1/2	N. Y. Air Brake 121-124
Am. Ship pf. — -90 1/4	Nova Scotia Steel 87-95
Am. Std. Fdries. 35-38 1/4	Pressed Stl. com. 82-87 1/2
Bald. Loco. com. 98 1/2-105 1/4	Pressed Stl. pf. 102 1/4-104
Bald. Loco. pf. 110-111 1/4	Ry. Stl. Spg. cm. 91 1/4-94
Beth. Steel com. 83-87 3/4	Ry. Stl. Spg. pf. — -108 1/4
Beth. Stl. Cl. B. 81 3/4-89 3/4	Republic, com. 87 1/4-91 1/4
Case, J. I., pf. 97-100	Republic, pf. 104 1/4-104 1/4
Central Fdry. cm. — -22 1/4	Sloss, com. 64-69 1/2
Central Fdry. pf. 48-49 3/4	Sloss, pf. 90 1/4-93 1/4
Colo. Fuel 48 1/4-51 1/4	Superior Steel 49 1/4-53 1/4
Cru. Steel com. 90 1/4-96 1/4	Transue-Williams 57 1/4-58
Cru. Steel pf. — -100 1/4	Un. Alloy Steel 51 1/4-55
Deere & Co. pf. — -99	U. S. Pipe com. 27 1/4-33 1/4
Gen. Electric 164-169 1/4	U. S. Pipe pf. 63 1/4-66 1/4
Gl. No. Ore Cert. 45 1/4-48	U. S. Steel com. 106 1/4-111 1/4
Gulf States Steel 65 1/4-76	U. S. Steel pf. 116-116 1/4
Int. Har. com. 130 1/4-141 1/4	Va. I. C. & Coke 68-72
Lacka. Steel 84 1/4-88 1/4	Westing. Electric 56 1/4-59 1/4

Dividends

The Allis-Chalmers Mfg. Co., quarterly, 1 1/4 per cent on the preferred and extra 1/4 per cent on account of accumulated dividends, payable July 15.

The American Car & Foundry Co., quarterly, 2 per cent on the common and 1 1/4 per cent on the preferred, payable July 1.

The Canadian Crocker-Wheeler Co., quarterly, 1 1/4 per cent on the common and preferred, payable June 30.

The Canadian General Electric Co., quarterly, 2 per cent on the common, payable July 1.

The Gulf States Steel Co., quarterly, 1 1/4 per cent on the first preferred and 1 1/2 per cent on the second preferred, payable July 1.

The Yale & Towne Mfg. Co., quarterly, 2 1/2 per cent, payable July 1.

The Youngstown Sheet & Tube Co., quarterly, 2 per cent and extra 1 per cent on the common, and 1 1/4 per cent on the preferred, payable July 1.

The American Can Co., quarterly, 1 1/4 per cent on the preferred, payable July 1.

The J. I. Case Threshing Machine Co., quarterly, 1 1/4 per cent on the preferred, payable July 1.

The La Belle Iron Works, quarterly, 1 per cent and extra 1 per cent on the common, and 1 1/4 per cent on the preferred, payable June 30.

The Worthington Pump & Machinery Corporation, quarterly, 1 1/4 per cent on the preferred A and B, payable July 1.

Industrial Finances

Judge Mayer, United States Federal Court, New York, has appointed Harrison H. Henry receiver for the Maxim Corporation, 120 Broadway, manufacturer of munitions, as a result of an involuntary petition in bankruptcy filed against the company. It is claimed that the liabilities are in excess of \$1,000,000, while the estimated realization value of assets, including plants and machinery, will not exceed \$350,000. The company

has a plant at Derby, Conn., subject to mortgage and leased to the United States Cartridge Co. Mr. Henry is president of the corporation.

Wire Companies to Consolidate

WORCESTER, MASS., June 10.—The Wright Wire Co. and the Morgan Spring Co., Worcester, Mass., and the Clinton Wire Cloth Co., Clinton, Mass., have reached an agreement with Liggett & Drexel, bankers, New York, under which they have deposited in escrow a majority of their voting stock which the bankers are given the right to purchase at an agreed price. Upon the transfer of this stock the business of the three companies will be consolidated. The directors of the Clinton Wire Cloth Co. have formally notified stockholders of the transaction under which two-thirds of the company's voting stock has been deposited with the Old Colony Trust Co., Boston, and advising holders of both preferred and common stock to take similar action. Liggett & Drexel agree to pay \$150 for the common and \$116.50 for the preferred. The stock of the two Worcester companies is closely held. Their officers state that the transaction has proceeded to the point as stated. The Spencer Wire Co., Worcester, and the Wickwire Steel Co., Buffalo, were recently mentioned in connection with a possible combination with the three companies involved in this deal but it is stated that they are not in any way included in the present transaction.

Advertising Council of Handling Machinery Manufacturers Formed

An advertising council of the Material Handling Machinery Manufacturers' Association was formed Tuesday afternoon at the Hotel Astor, New York, A. J. Barnes, advertising manager Shepard Electric Crane & Hoist Co., Montour Falls, N. Y., being appointed temporary chairman. The council, to be composed of three or five members, will devote itself to the formulation and execution of plans for advertising material handling equipment. The Tuesday afternoon meeting was devoted to a discussion of this subject. Among the speakers were E. B. Hill, McGraw-Hill Publishing Co.; Burdett Phillips, Burdett Phillips Co., Inc.; J. M. Van Harlingen, Republic Motor Truck Co., and others. Paul Caldwell, New York district sales manager for the Cleveland Crane & Mfg. Co., Wickliffe, Ohio, and chairman of the motion picture committee of the association, told of the committee's plans for spreading the gospel of handling material by machinery by means of moving pictures. Modern material handling equipment will be demonstrated by means of the movies to all interested in port and terminal development all over the world.

On Wednesday morning the Material Handling Machinery Manufacturers' Association began an all-day session at the Hotel Astor. A report of this meeting will appear in the next issue of THE IRON AGE.

Press reports to the effect that Follansbee Bros. Co., Pittsburgh, operating an open hearth steel plant, sheet and tin plate mills at Follansbee, near Wheeling, W. Va., would duplicate its present sheet and tin plate mills at Steubenville, Ohio, is said by an official of the company to be untrue. It is a fact that this company has for some time felt the need of more sheet mill capacity, and has considered the erection of a plant to make sheets, and probably tin plate, in the Wheeling or Steubenville districts, but no definite plans have been made for the new plant, and may not be for some time. It is probable, however, that later in the year the company will get to work actively on the project for new sheet mills.

A meeting of the Steel Treating Research Society was held in Detroit on Saturday, June 7, at which nearly 150 members were present. Dr. Matthews of the Halcomb Steel Co., Syracuse, N. Y., gave an address on "Different Processes for Heat Treating Steel, Especially Alloy Steels."

Prices Finished Iron and Steel, f.o.b. Pittsburgh

The prices below are based on those announced at Washington by the Industrial Board on March 20, 1912, effective the following day, which since that date have largely governed market transactions, though there have been variations, as indicated in market reports on other pages.

Freight rates from Pittsburgh on finished iron and steel products, including wrought iron and steel pipe, with revisions effective Nov. 1, 1912, in carloads, to points named, per 100 lb., are as follows: New York, 27c.; Philadelphia, 24.5c.; Boston, 30c.; Buffalo, 17c.; Cleveland, 17c.; Cincinnati, 23c.; Indianapolis, 25c.; Chicago, 27c.; St. Louis, 34c.; Kansas City, 59c.; St. Paul, 49½c.; Denver, 99c.; Omaha, 59c.; minimum carload, 36,000 lb. to four last named points; New Orleans, 38.5c.; Birmingham, 57.5c.; Pacific Coast, \$1.25; minimum carload, 80,000 lb. To the Pacific Coast the rate on steel bars and structural steel is \$1.315, minimum carload 40,000 lb.; and \$1.25, minimum carload 50,000 lb. On wrought iron and steel pipe the rate from Pittsburgh to Kansas City is 50c. per 100 lb., minimum carload 46,000 lb.; to Omaha, 50c., minimum carload 46,000 lb.; to St. Paul and Minneapolis, 49.5c.; minimum carload 46,000 lb.; Denver, 99c.; minimum carload 46,000 lb. A 3 per cent transportation tax applies. On iron and steel items not noted above, rates vary somewhat and are given in detail in the regular railroad tariffs:

Structural Material

I-beams, 3 to 15 in.; channels, 3 to 15 in. angles, 3 to 6 in. on one or both legs, ¼ in. thick and over, and zeels, structural sizes, 2.45c.

Wire Products

Wire nails, \$3.25 base per keg; galvanized, 1 in. and longer, including large-head barbed roofing nails, taking an advance over this price of \$1.50, and shorter than 1 in., \$2.00. Bright basic wire, \$3.15 per 100 lb.; annealed fence wire, Nos. 6 to 9, \$3.00; galvanized wire, \$3.70; galvanized barbed wire and fence staples, \$4.10; painted barbed wire, \$3.40; polished fence staples, \$3.40; cement-coated nails, \$2.85 base; these prices being subject to the usual advances for the smaller trade, all f.o.b. Pittsburgh, freight added to point of delivery, terms 60 days net, less 2 per cent off for cash in 10 days. Discounts on woven-wire fencing are 60½ per cent off list for carload lots, 59½ per cent for 1000-rod lots, and 58½ per cent off for small lots, f.o.b. Pittsburgh.

Bolts, Nuts and Rivets

Large structural and ship rivets, \$3.70 base
Large boiler rivets, \$3.80
¼ in., 5/16 in. and 7/16 in. diam., 65-10 and 5 per cent off list
Machine bolts, h.p. nuts, ¾ in. x 4 in.:
Smaller and shorter, rolled threads, 60-10-5 per cent off list
Cut threads, 60-5 per cent off list
Larger and longer sizes, 50-10 per cent off list
Machine bolts, c.p.c. and t. nuts, ¾ in. x 4 in.:
Smaller and shorter, 45-10-10 per cent off list
Larger and longer, 40-10-5 per cent off list
Carriage bolts, ¾ x 6 in.:
Smaller and shorter, rolled threads, 60-5 per cent off list
Cut threads, 50-10-5 per cent off list
Larger and longer sizes, 45-10 per cent off list
Lag bolts, 65-5 per cent off list
Plow bolts, Nos. 1, 2, 3, 60 per cent off list
Hot pressed nuts, sq. blank, 3.25c. per lb. off list
Hot pressed nuts, hex., blank, 3.25c. per lb. off list
Hot pressed nuts, sq. tapped, 3c. per lb. off list
Hot pressed nuts, hex., tapped, 3c. per lb. off list
C.p.c. and t. sq. and hex. nuts, blank, 3.25c. per lb. off list
C.p.c. and t. sq. and hex. nuts, tapped, 3c. per lb. off list
Semi-finished hex. nuts:
¾ in. and larger, 70-10 per cent off list
9/16 in. and smaller, 80 per cent off list
Stove bolts in packages, 75-10-10-5 per cent off list
Stove bolts, in bulk, 2½ per cent extra
Tire bolts, 60-10-10-5 per cent off list
The above discounts are from March 28, 1912.
All prices carry standard extras. Pittsburgh basis.

Wire Rods

No. 5 common basic or Bessemer rods to domestic consumers, \$52; chain rods, \$60; screw, rivet and bolt rods and other rods of that character, \$60. Prices on high carbon rods are irregular. They range from \$65 to \$75, depending on carbons.

Railroad Spikes and Track Bolts

Railroad spikes 9/16 in. x 4½ in. and heavier, and small spikes, per 100 lb., \$3.35 in lots of 200 kegs of 200 lb. each or more; track bolts, \$4.35 per 100 lb. in carload lots of 200 kegs or more, and \$4.90 in small lots. Boat and barge spikes, \$2.85 per 100 lb. in carload lots of 200 kegs or more, f.o.b. Pittsburgh.

Terne Plate

Prices of terne plate are as follows: 8-lb. coating, 200 lb., \$13.80 per package; 8-lb. coating, I. C., \$14.10; 12-lb. coating, I. C., \$15.80; 15-lb. coating, I. C., \$16.80; 20-lb. coating, I. C., \$18.05; 25-lb. coating, I. C., \$19.30; 30-lb. coating, I. C., \$20.30; 35-lb. coating, I. C., \$21.30; 40-lb. coating, I. C., \$22.30 per package, all f.o.b. Pittsburgh, freight added to point of delivery.

Iron and Steel Bars

Steel bars at 2.35c. from mill. Prices on bar iron are 2.35c.

Wrought Pipe

The following discounts are to jobbers for carload lots on the Pittsburgh basing card.

Steel			Iron		
Inches	Black	Galv.	Inches	Black	Galv.
1½, 1¼ and ¾	50½	24	1½ and 1¼	29½	24
1½	54½	40	¾	30½	24
¾ to 3	57½	44	¾ to 1½	34½	16½
				39	21½
Lap Weld			Lap Weld		
1½ to 6	50½	38	1½	24½	9½
6 to 12	53½	41	1½	31½	17½
12 to 14	50½	37	2	32½	18½
14 and 15	41	..	2 to 6	34½	21½
15	38½	..	6 to 12	31½	18½
Butt Weld, extra strong, plain ends			Butt Weld, extra strong, plain ends		
1½, ¾ and ¾	46½	29	1½, ¾ and ¾	28½	11½
1½	51½	39	1½	33½	20½
¾ to 1½	55½	43	¾ to 1½	39½	21½
¾ to 3	56½	44			
Lap Weld, extra strong, plain ends			Lap Weld, extra strong, plain ends		
2	48½	37	1½	25½	10½
2½ to 4	51½	40	1½	31½	17½
4½ to 6	50½	39	2	33½	20½
7 to 8	46½	33	2½ to 4	35½	23½
9 to 12	41½	28	4½ to 6	34½	22½
			6 to 8	26½	11½
			9 to 12	21½	9½

To the large jobbing trade an additional 5 per cent is allowed over the above discounts, which are subject to the usual variations in weight of 5 per cent.

On butt and lap weld sizes of black iron pipe, discounts for less than carload lots to jobbers have been seven (7) points lower (higher price) than carload lots, and on butt and lap weld galvanized iron pipe have been nine (9) points lower (higher price).

Boiler Tubes

The following are the prices for carload lots, f.o.b. Pittsburgh:

Lap Welded Steel	Charcoal Iron
3½ to 4½ in. 40½	3½ to 4½ in. —16
2½ to 3½ in. 30½	3 to 3½ in. —11½
2½ in. 24	2½ to 2¾ in. +1
1½ to 2 in. 19½	2 to 2½ in. +10
	1½ to 1¾ in. +20

Standard Commercial Seamless—Cold Drawn or Hot Rolled

Per Net Ton	Per Net Ton
1 in. \$327	1½ in. \$207
1¼ in. 267	2 to 2½ in. 177
1¾ in. 257	2½ to 3¾ in. 167
1½ in. 207	4 in. 187
	4½ to 5 in. 207

These prices do not apply to special specifications for locomotive tubes nor to special specifications for tubes for the Navy Department, which will be subject to special negotiation.

Sheets

Makers' price for mill shipments on sheets of United States standard gage in carload and larger lots are as follows:

Blue Annealed—Bessemer		Cents per lb.
No. 8 and heavier		3.50
Nos. 9 and 10 (base)		3.55
Nos. 11 and 12		3.60
Nos. 13 and 14		3.65
Nos. 15 and 16		3.75
Box Annealed, One Pass Cold Rolled—Bessemer		
Nos. 17 to 21		4.15
Nos. 22 to 24		4.20
Nos. 25 and 26		4.25
No. 27		4.30
No. 28 (base)		4.35
No. 29		4.40
No. 30		4.55

Galvanized, B Sheet Gage—Bessemer		
Nos. 10 and 11		4.70
Nos. 12 and 14		4.80
Nos. 15 and 16		4.95
Nos. 17 to 21		5.10
Nos. 22 to 24		5.25
Nos. 25 and 26		5.40
No. 27		5.55
No. 28 (base)		5.70
No. 29		5.95
No. 30		6.20

Tin-Mill Black Plate—Bessemer		
Nos. 15 and 16		4.15
Nos. 17 to 21		4.20
Nos. 22 to 24		4.25
Nos. 25 to 27		4.30
No. 28 (base)		4.35
No. 29		4.40
No. 30		4.40
Nos. 30½ and 31		4.45

Non-Ferrous Metals

The Week's Prices

Cents per Pound for Early Delivery

Copper, New York			Tin,	Lead		Spelter	
	Lake	Electro- lytic	New York	New York	St. Louis	New York	St. Louis
4	16.87½	16.62½	72.50	5.25	5.00	6.52½	6.17½
5	17.00	16.75	72.50	5.25	5.00	6.55	6.20
6	17.12½	16.87½	72.50	5.25	5.00	6.55	6.20
7	17.37½	17.12½	....	5.25	5.00	6.60	6.25
8	17.62½	17.37½	72.50	5.25	5.00	6.65	6.30
9	17.75	17.50	72.50	5.25	5.00	6.65	6.30

NEW YORK, June 10.

Considerable activity is noted in most of the markets and both inquiry and buying have increased. Demand for copper has expanded decidedly so that prices are higher. The tin market is extremely dull and still under control. The lead market is a little more active with prices stiffer. There has been an increase in the demand for spelter and prices have advanced. Antimony is steady.

New York

Copper.—On Friday and Saturday of last week and on the first two days of this week demand expanded and some heavy buying was reported. Previous to this the market had been advancing slowly, but since late last week prices have stiffened still further until to-day electrolytic copper for early delivery is quoted at 17.50c., New York, with 17.75c. to 18c. asked and obtained for August shipment. Much of the business that was closed in the last few days was for July and August delivery, with most of it for the latter month. Demand for Lake copper has also been strong in the past week and quotations are ¼c. to ¼c. higher than electrolytic, this grade of copper being quoted for early delivery at about 17.75c., New York. For August, 18c., New York, is quoted. Most of the buying referred to appears to have come from wire producers and some from the brass industry. The tone of the market is strong and better than it has been any time since the armistice. The recent prediction that 20c. copper would be reached in the near future is regarded by many as possible late in July or early in August. Japan has been an important factor in recent purchases.

Tin.—Interest in purchases for future shipment either from the East or from England has disappeared and the market has turned extremely stagnant. It is merely a nominal waiting market and practically the only tin available is the Government metal, which is still fixed at 72.50c., New York. Two interesting statements have appeared in the past week; one is over the signature of George Armsby, chief in charge of tin, to the effect that on June 9 the remainder of the allocated tin still unsold was 1071 gross tons. This is some 500 tons less than on June 1. The other matter of interest is that freight rates from the Pacific Coast to Eastern points have been reduced from \$1.25 per 100 lb. to 75c., effective May 29, but applying only on import shipments. Those who have been purchasing tin for shipment into Canada will be unable to import it into the United States until tin bought for importation from the Far East has reached this country. This is regarded as an effort to protect not only those who have purchased allocated tin at 72.50c., but also American producers of the metal.

Lead.—In sympathy with the strong copper market lead has stiffened decidedly and there have been good sales since last Friday. The cheap lots around 5.15c. which were reported from certain quarters as available are said to be impossible to locate. The outside market is on a parity with that of the leading interest at 5.25c., New York, or 5c., St. Louis.

Spelter.—A much better inquiry for prime Western and other grades has developed in the last few days

than in several weeks. It has also resulted in some business. Part at least of the better tone is due to the strength of copper and the buying of that metal by brass makers who also need zinc. While the amount of business reported has not been large so far, prices have stiffened and prime Western is quoted at 6.30c., St. Louis, or 6.65c., New York, for early delivery, with July held at 6.35c., St. Louis. It is believed that the final turn in the market has arrived.

Antimony.—The market is unchanged with wholesale lots for early delivery quoted at 8.37½c. to 8.50c., duty paid, for Asiatic grades.

Aluminum.—The market is quiet with No. 1 virgin metal, 98 to 99 per cent pure, in wholesale lots for early delivery quoted at 32c. to 33c., New York.

Old Metals.—The market is firm. Dealers' selling prices are nominally as follows:

	Cents per lb.
Copper, heavy and crucible	16.75
Copper, heavy and wire	15.50
Copper, light and bottoms	13.50
Brass, heavy	11.50
Brass, light	8.50
Heavy machine composition	16.00
No. 1 yellow rod brass turnings	9.25
No. 1 red brass or composition turnings	13.25
Lead, heavy	4.75
Lead, tea	4.00
Zinc	5.00

St. Louis

ST. LOUIS, June 9.—The markets have been quiet the past week, with very little change in quotations which closed to-day as follows: Lead, 4.90c.; spelter, 6.15c. for car lots. In less than car lots the quotations were: Lead, 5.25c.; spelter, 6.75c.; tin, 72.50c.; copper, 17.75c.; Asiatic antimony, 9.50c. In the Joplin district ore prices showed no material change, although the maintenance of values in the metals kept them from falling. While top grades of zinc blends, calamine and lead were not markedly higher there was a leveling up of prices on second grades and lower which sustained the average at a better level. On miscellaneous scrap metals we quote dealers' buying prices as follows: Light brass, 7c.; light copper, 11c.; heavy red brass, 13.50c.; heavy yellow brass, 9c.; heavy copper and copper wire, 13.50c.; zinc, 3.50c.; lead, 4c.; tea lead, 3c.; pewter, 35c.; tin foil, 44c.; aluminum, 18c.

Chicago

CHICAGO, June 9.—Copper has advanced as a result of large and more general purchases. Although inquiries for tin for future delivery are current, little business is being placed. The interest manifested in future tin is regarded as an effort to try out the market. Lead is quiet but has advanced in sympathy with copper. Spelter is inactive. Antimony was purchased more heavily in the past week than in any similar period for some time. It has again advanced one-half cent. Old copper and brass have also advanced one-half cent. We quote copper at 17.75c. to 18c. for carloads; tin, 72.50c.; lead, 5c. to 5.10c.; spelter, 6.25c. to 6.30c.; antimony, 9.50c. to 10c. On old metals we quote copper wire, crucible shapes, 14c.; copper clips, 13.50c.; copper bottoms, 12c.; red brass, 14c.; yellow brass, 9c.; lead pipe, 4c.; zinc, 4c.; pewter, No. 1, 35c.; tin foil, 37c., and block tin, 50c., all these being buying prices for less than carload lots.

Results of some of the latest experiments with colloidal fuels are contained in a pamphlet, "Colloidal Fuels—Properties, Tests and Costs," by Linden W. Bates, 141 Broadway, New York, dated May, 1919. One of the tables contains data and results of boiler tests carried on at the Sone & Fleming Works of the Standard Oil Co. of New York in April of this year. Colloidal fuel made with pressure-still tar or oil, wax tailings, crude-oil, coke and coal coke is found nearly ashless and low in sulphur, so that it may be used in steel making.

An Associated Press dispatch from Christiania, Norway, says that it is planned to enlarge the port of Christiania at a cost of \$20,000,000.

NEW INDUSTRIES

Protection Being Considered by Committee—Secretary Redfield's Support

WASHINGTON, June 10.—The Ways and Means Committee of the House of Representatives to-day began its hearings on the special protection to be given "infant war industries." The first of these to be heard was the potash industry under a bill introduced by Chairman Fordney of Michigan. This bill provides for a system of licensing, under which for five years no potash can be imported except under a license from the Secretary of the Interior. These are only to be granted after guaranties are had that all the domestic potash is to be consumed, although at a fixed maximum price.

Representative Slemm of Virginia has introduced a bill to put a protective customs duty on manganese and manganese ores, on a basis of 35c. per unit of metallic manganese, that unit being defined as 1 per cent of metallic manganese in a short ton of the product, with a minimum of \$10 per ton. On ferromanganese and spiegeleisen, and other alloys, the duty is to be 75c. per unit, with a minimum of \$50 per ton. Another bill by Representative Slemm provides for a 15c. per unit duty on sulphur, sulphide containing minerals, and ores with sulphur contents, the unit again being 1 per cent of sulphur in a short ton.

Representative Hadley of Washington introduced a bill to protect the domestic magnesite industry, with a duty of $\frac{3}{4}$ c. per lb. on crude magnesite, $1\frac{1}{4}$ c. per lb. on calcined magnesite, and 25 per cent ad valorem on magnesite bricks.

Secretary Redfield of the Department of Commerce has announced his advocacy of protection for these "war industries," declaring that he believes the Government should assure the development of all our natural resources, so that we will not again have to depend upon foreign countries for any of them. He says he would even favor the reenactment of the \$50,000,000 war mineral bill, as a peace measure to exploit these resources.

Coal Production Decreased

WASHINGTON, June 10.—Coal production in the United States dropped so sharply in the last week in May that the estimates of the Geological Survey would indicate a shortage for the year, particularly if there is a recovery of general industrial activity.

"The production of bituminous coal" points out the statement of the Geological Survey, "which gained steadily for four weeks and reached a maximum since April 1 of nearly 9,000,000 tons in the week ended May 24, declined in the last week of May to 7,930,000 tons, a decrease of 9 per cent. The production in the last week of May, 1919, was more than two and a half million tons, or 25 per cent below that of the corresponding week of last year. The production of bituminous coal in the first five months of 1919 is 177,340,000 tons. The production in the corresponding period of 1918 was 234,632,000 tons, which exceeds the production for the same period of this year by 57,000,000 tons, or 24 per cent. In the six years, 1913 to 1918, the percentage of annual output of bituminous coal in the first five months of the calendar year averaged 40 per cent, the lowest being 36 per cent in 1915 and the highest being 41 per cent in 1914, in 1916 and 1917.

"If the production of the first five months in 1919 represents 40 per cent of what will be mined this year the production for 1919 is thus indicated to be but 446,000,000 tons; if, as in 1915, the output in the first five months is 36 per cent of the total for the year, an output of 495,000,000 tons is indicated for the calendar year 1919. These facts appear to indicate that the production of bituminous coal this year cannot be greater than 500,000,000 net tons. Whether this quantity added to the surplus stock on hand at the first of the year estimated around 30,000,000 tons, will be sufficient for the needs of the country depends upon whether general industrial activity recovers sufficiently to ap-

proximately equal that of the latter part of 1916 and the early part of 1917."

Production of beehive coke in the United States in the week ended May 31 is estimated at 264,645 tons compared with 250,810 net tons in the week ended May 24, and 582,204 net tons in the week ended June 1, 1918. For the calendar year to date the production is estimated at 8,481,000 tons compared with 12,547,000 tons for the corresponding period of last year. Excepting West Virginia, all beehive coke districts recorded improvement in production in the last week of May, but, in all districts the output for the week and for the year to date is much below that of the corresponding period of last year.

Furnace Operations Improving

YOUNGSTOWN, OHIO., June 10—Blast furnace operations continue to improve in the Mahoning and Shengango valleys, 28 of the 46 stacks producing metal this week. Three furnaces have been started in the last ten days, while one was shut down. Monday, June 9, the Youngstown Sheet & Tube Co. put No. 1 furnace at Hubbard in blast after a shutdown of several months, during which time it was overhauled and new installations added. The Sheet & Tube company is now operating five of its six furnaces. No. 1 Hubbard furnace has a daily capacity of 350 tons. New ore and coke bins and mechanical filling apparatus have been added to the Hubbard stacks.

At the Ohio works battery, the Carnegie Steel Co. has blown in No. 5 furnace, with a rated capacity of 500 tons daily. The Carnegie company has also blown in the Rosena furnace at New Castle. Only two of the Carnegie seven furnaces in the Mahoning valley remain idle, No. 3 at the Ohio works and the Niles stack.

Trumbull Steel Co. Officials

YOUNGSTOWN, OHIO, June 10—J. U. Anderson has been elected treasurer of the Trumbull Steel Co., succeeding Lloyd Booth, resigned. Mr. Anderson has been assistant to the president and was formerly assistant treasurer. A. L. Button has been chosen secretary, vice William M. McFate, who has been elected a vice-president. Mr. Button has been assistant treasurer. Arthur M. Long has been named assistant general manager of sales, succeeding Paul Wick, resigned. Mr. Long was formerly in the Chicago sales office of the Jones & Laughlin Steel Co., Pittsburgh. Mr. Wick has resigned to become associated with Mr. Booth in promoting the Falcon Steel Co., recently incorporated for \$2,500,000. Clyde E. Tousley has been named head of the department of extension of sales. He served as lieutenant with the 136th Machine Gun Battalion of the 37th Division, in France.

The stock held by Isaac Levin in the Bordentown Steel & Tube Corporation, Bordentown, N. J., manufacturer of cold-drawn seamless steel tubing, has been acquired by F. N. Beegle, president Union Drawn Steel Co., Beaver Falls, Pa., and A. D. Dorman, president Steel Sales Corporation, Chicago. Mr. Levin has resigned as director and Mr. Beegle was elected to fill the vacancy. The present directors are: A. D. Dorman, president Steel Sales Corporation, Chicago; F. N. Beegle, president Union Drawn Steel Co., Beaver Falls, Pa.; Julius Blum, president Julius Blum & Co., New York; H. S. White, president Bordentown Steel & Tube Corporation, Bordentown, N. J. The officers are: H. S. White, president and treasurer, Bordentown, N. J.; V. P. Jackson, secretary, Bordentown, N. J.

A bronze bust of Judge E. H. Gary, chairman of the United States Steel Corporation and president of the American Iron and Steel Institute, has been placed in the McKinley Memorial building at Niles, promoted by J. G. Butler, Jr., also a director of the institute. The bust is the work of J. Massey Rhind, New York sculptor. Busts of Roosevelt, Taft, H. C. Frick and other statesmen and industrial leaders are in the memorial.

Machinery Markets and News of the Works

TRADE ACTIVE IN MID-WEST

Chicago and Detroit Centers of Machine-Tool Demand

About \$50,000,000 Will Be Spent in Detroit District for Plant Expansion

Chicago and Detroit continue to be the most active markets. Some Chicago dealers state that May business was the best since the armistice was signed, and orders thus far in June indicate that this will be a still better month. While labor troubles in the automobile industry at Detroit have somewhat affected buying, a steady volume of orders is being placed. It is estimated that \$50,000,000 will be spent in the Detroit district within the next few months for additions to automobile plants and new factories. Work has been started on the huge automobile plant to be built at Port Huron, Mich., by C. Harold Wills and John R. Lee, formerly of the Ford Motor Co.

Among buyers of fair-sized lots of tools in the Chicago market are the Bucyrus Co., South Milwaukee; the A. B. Dick Co., Chicago; the Teeter-Hartley Motor

Co., Hagerstown, Ind., and the Studebaker Corporation, South Bend, Ind. The Haynes Automobile Co., Kokomo, Ind., will soon buy several hundred thousand dollars worth of machine tools for a new four-story plant. The Pennsylvania Railroad has bought a number of tools for its Logansport, Ind., and Columbus, Ohio, shops.

An Ohio maker of automobile parts is inquiring in the Cleveland market for 15 machines. The Firestone Tire & Rubber Co., Akron, Ohio, has placed orders in Cleveland for about \$50,000 worth of tools. The Republic Motor Truck Co., Alma, Mich., has acquired a site near Cleveland and will build a new plant for which considerable equipment will be required. The Jones Gear Co., Cleveland, will also build a new plant.

The Briggs & Stratton Co., Milwaukee, will build a new factory, which with equipment will cost close to \$500,000. Orders for machine tools will soon be placed.

The Jahncke Dry Dock & Ship Repair Co., New Orleans, La., is in the market for a list of machine tools, plate working machines and cranes.

In the East, trade has been somewhat quiet. Large lots of used tools are being offered for sale and this is affecting sales of new tools. The Emergency Fleet Corporation has a large list of tools, new and used, to be sold.

New York

NEW YORK, June 16

The week has been exceedingly quiet in the machine-tool trade. With the exception of a continuation of buying by the Standard Oil Co. of New Jersey for its Bayway, N. J., shops, there has been little of importance in the market. The American Shell Co., Paterson, N. J., has begun to place orders, but some second-hand tools are being bought. In fact, the competition of second-hand tools has caused the loss of quite a number of expected orders for new tools. The De Laval Separator Co., Poughkeepsie, N. Y., is inquiring for a few tools, and the Yale & Towne Mfg. Co., Stamford, Conn., has bought tool-room equipment. The Columbia Graphophone Co., Bridgeport, Conn., which recently advertised for about 200 slightly used automatic and hand screw machines and other tools, is reported to have purchased a large part of its requirements. Second-hand dealers have been scouring the country to find tools that the phonograph company would accept.

Export business is not especially active, but some is being done. An English company has bought machine-tool equipment for two locomotive makers, and the representative of another British firm is in New York and may buy extensively. He is George L. Garbett of Oldham, Ltd., whose plant was destroyed by bombing about 15 months ago.

There is very little inquiry for cranes, but hoist manufacturers are taking a fair number of orders. The Material Handling Machinery Manufacturers' Association hopes to stimulate greater interest in cargo-handling cranes for freight terminals and wharves by its meeting at the Hotel Astor, New York, this week. Many officials interested in port development have been invited to attend. On Monday a committee of the association met with the State Engineer of New York State in an endeavor to perfect standard specifications for cranes which the State would find acceptable for the New York Barge Canal. About 50 cranes will eventually be required for various ports on the Barge Canal. The city of Providence, R. I., has rejected all bids for six cargo-handling cranes for its own docks, and has returned certified checks totaling more than \$200,000. New bids on a smaller number of cranes will probably be asked for. The Dale-Brewster

Machinery Co., New York, has received an order for two 25-ton Pawling & Harnischfeger cranes and a number of machine tools from Davies & Thomas, Catawauqua, Pa.

The Champion Engineering Co., Kenton, Ohio, has located its New York office at 1001 Singer Building instead of at 30 Church Street. J. W. Spensley has charge.

The Westinghouse Electric & Mfg. Co., Newark, N. J., has issued a statement denying the report that its local plant on Orange Street will be removed to Springfield, Mass., for operation in connection with the New England Westinghouse Co. The Newark works have been devoted to the manufacture of automobile starting and lighting equipment, and similar apparatus as will be made at the Springfield plant. The business has increased to the point that the capacity of the Newark plant is not large enough to handle it, and it is the intention to transfer a portion of the equipment to Springfield, at the same time maintaining operations at Newark.

The Burstein Body Works, 634 South Fifteenth Street, Newark, N. J., has filed notice of organization to manufacture automobile bodies, parts, etc. Earnest Burstein, 131 Charlton Street, heads the company.

C. A. Goldsmith, Newark, N. J., operating a brass foundry at 270 Thomas Street, has filed plans for a one-story pattern shop.

The North End Tool Co., 329 Franklin Avenue, Bloomfield, N. J., has filed notice of organization to manufacture tools, etc. William Brewster, Jr., 46 Maple Avenue, Irvington, Newark, heads the company.

A three-story plant to cost \$400,000, with machinery and equipment, is planned by the American Chemical & Mfg. Co., 347 Madison Avenue, New York, on a site in the vicinity of Perth Amboy, N. J.

The Composite Metal Lath Co., Union Hill, N. J., has been incorporated with a capital stock of \$2,000,000 by Francis H. McCauley, 404 Lewis Street; Ernest J. Jochem and Ferdinand Klumpp, to manufacture metal lathing, etc.

The Heller Brothers Co., 879 Mount Prospect Avenue, Newark, N. J., manufacturer of files, rasps, etc., has awarded contract to S. D. Harrison, Cleveland Street, Cald-

well, N. J., for a one-story addition, 60 x 123 ft., to cost \$9,000.

The Industrial Safety Corporation, Newark, N. J., has been incorporated with a capital stock of \$125,000 by Michael C. Murphy and Abraham Henig, to manufacture safety mechanical equipment. Meyer Rashkes, 9 Clinton Street, is registered agent.

The New Land Lamp Co., Newark, N. J., has been incorporated with a capital stock of \$100,000 by Nicholas Striglia, R. J. Farese and Michael Bonito, to manufacture lighting fixtures, etc.

The Peerless Starter Co., 32 Branford Place, Newark, N. J., has filed notice of organization to manufacture starting devices for automobiles. Ernest Pauck, Marshall Street, Newark, and Francis Tyler, 170 Cambridge Street, Jersey City, head the company.

The Cooper-Hewitt Electric Co., Eighth and Grand streets, Hoboken, N. J., manufacturer of electric lamps, etc., has increased its capital stock from \$1,000,000 to \$2,000,000.

The Hart Roller Bearing Co., 25 Main Street, Orange, N. J., has filed plans for a one-story power plant for the operation of its new roller bearing works now being erected nearby.

The Central Auto Parts Works, Boulevard and Main Street, North Bergen, N. J., has organized to manufacture machine and automobile parts. William Kypta, 127 Twenty-fifth Street, and Stephen Paul, 116 Twenty-sixth Street, Guttenberg, head the company.

The Canso Mfg. Co., New York, has been incorporated with a capital stock of \$25,000 by L. Pollak, B. Schnee and D. M. Pompan, 53 Jay Street, to manufacture metal products.

The Howard E. Wheeler Shipyard, Cropsey and Twenty-third avenues, Brooklyn, is planning for increased operating facilities and to provide for the manufacture of small cruisers and pleasure vessels, in which the company proposes to specialize. A drydock and repair department for sea-going vessels is also planned. Howard E. Wheeler heads the company.

The Shore Instrument & Mfg. Co., 557 West Twenty-second Street, New York, manufacturer of pyrometers, measuring instruments, etc., has awarded contract to the Richmond Hill Contracting & Engineering Co., 2124 Jamaica Avenue, Richmond Hill, L. I., for its proposed plant on Van Wyck Avenue, near Fulton Street, Jamaica, Long Island, three stories, 59 x 100 ft., estimated to cost \$30,000.

The Prospect Engineering & Welding Co., Brooklyn, has been incorporated with a capital stock of \$100,000 by J. A. and F. J. Wasilkowski, and W. H. Johnson, 55 Hanson Place, to manufacture welding apparatus.

The Alumo Board Co., New York, has been incorporated with a capital stock of \$200,000 by M. M. Stapleton, M. Forbes, and C. F. Klee, 980 East Twenty-second Street, Brooklyn, to manufacture aluminum pressing boards, etc.

H. K. Lorentzen, New York, operating a machine works at 60 Grand Street, has incorporated the H. K. Lorentzen Saw Corporation, New York, with capital stock of \$30,000 to manufacture saws, etc.

The Thacher Propeller & Foundry Corporation, Albany, N. Y., has been incorporated with a capital stock of \$1,200,000 by H. S. Bell, T. C. and G. H. Thacher, to manufacture propellers, etc.

The Three Unit Engineering Corporation, 27 City Hall Place, New York, has acquired property on Concord Avenue, 62½ x 100 ft., for a new works.

The Sales Check Machine Corporation, New York, has been incorporated with a capital stock of \$100,000 by D. H. Douglass, E. S. Weeks and W. C. Woodward, 286 Fifth Avenue, to manufacture apparatus for ticket registration, check machines, etc.

Jonas B. Oglaend, Inc., New York, has been incorporated with a capital stock of \$75,000 by Jonas B. Oglaend, M. M. Lloyd and R. E. Shortall, 27 William Street, to manufacture agricultural implements, etc.

The Closure Service Corporation, Brooklyn, has been incorporated with a capital stock of \$150,000 by I. S. Kutch, L. R. N. Carvalho, and T. F. Thornton, 100 Broadway, to manufacture metal containers, caps, etc.

The Belcanto Co., 130 West Forty-second Street, New York, manufacturer of phonographs, parts, etc., has increased its capital stock from \$25,000 to \$150,000.

The No-More Key Mfg. Co., New York, has been incorporated with a capital stock of \$100,000 by S. F. Frank and N. Dobson, 170 Broadway, to manufacture keyless locks, etc.

The Nacileo Co., Rutherford, N. J., has been incorporated with a capital stock of \$100,000 by A. H. and C. W.

Jackson, and John Larson, Rutherford, to manufacture boats.

The New York Machine & Plate Co., Twelfth and Monmouth streets, Jersey City, N. J., has filed notice of organization to manufacture structural shapes, plates, machine work, etc. It will be operated by the Sanitation Corporation, 50 Church Street, New York.

Maddaus & Co., recently incorporated to specialize in tools, maintains its office at 90 West Street, New York, not 304 West Thirty-first Street as has been stated.

Edward Weck & Son, Inc., 206 Broadway, New York, plans to increase the output of its factory at 135 Johnson Street, Brooklyn, by next fall to about 1000 razors per day.

The J. E. Duff Co., New York, has been incorporated with a capital stock of \$15,000 by Leo Monsheimer and William H. Roberts, Brooklyn, and Maurice Brandy, Arverne, L. I., to manufacture boilers.

Philadelphia

PHILADELPHIA, June 10

Only a moderate amount of machine-tool business is reported. Second-hand tools are perhaps more active than new tools, as users are seeking every opportunity to save money on their purchases. The Rainey-Wood Coke Co., Philadelphia, has bought about a dozen new tools for a machine shop at its new by-product coke plant, and the Bethlehem Steel Co., Bethlehem, Pa., is in the market for 10 or 12 tools for a valve shop to be established at Redington, Pa. The inquiry of the Cumberland Valley Railroad for about 25 miscellaneous tools, issued a few weeks ago, is still pending. The Frankford Arsenal, Philadelphia, and the Bethlehem Steel Co. are now taking bids on lists of used tools of which they wish to dispose. Bids close this week. The Emergency Fleet Corporation, Philadelphia, will soon offer a large list for sale.

It is reported here that the Navy Department, which has been buying new tools, may find a way to take over some of the surplus of the War Department. Under the law, the Navy Department is required to get competitive bids, but it is believed that some method will be found to get around this law. The War Department is said to have been strongly urging that the Navy buy its tools instead of going into the market for similar equipment.

The Bethlehem Steel Corporation has completed plans for the establishment of a plant at Redington, Pa., for the manufacture of valves and other fittings of a like nature. It will occupy one of the company's buildings which was used during the war for fuse and shell-loading operations.

The Read Machinery Co., Glen Rock, Pa., manufacturer of bakers' machinery, has purchased a 26-acre plot outside of York, Pa., where it will locate a plant. The Glen Rock plant will continue in operation, but the new establishment will be the main office of the company. Harry Read is president.

The Williamsport Radiator Co., Williamsport, Pa., has filed notice of an increase in its capital stock from \$200,000 to \$350,000 to provide for betterments.

The Velcut Co., Philadelphia, capitalized at \$50,000 has been incorporated to manufacture machines and mechanical appliances. The incorporators are Andrew Velaurd, 4663 Oakland Street, Philadelphia; Andrew and Jules Demetre, 229 Fourth Avenue, New York.

The Pennsylvania Electric Welding Co., Philadelphia, has filed notice of an increase in its capital stock from \$10,000 to \$20,000. John S. Thompson is secretary.

The Montgomery Automobile Co., Chester, Pa., has filed notice that it plans to increase its capital stock from \$6,000 to \$30,000. S. L. Montgomery is secretary.

The H. E. Pyke Baler & Wire Co., Philadelphia, has been incorporated with a capital stock of \$5,000 to manufacture baling presses and wire. The incorporators are Harry E. Pyke and R. L. Strouse, Belle Claire Apartments, Fortieth Street and Parkside Avenue, Philadelphia; and Harry E. Smith, 3845 North Franklin Street, Philadelphia.

The Robert Scott Co., Philadelphia, has been incorporated to construct power and mechanical equipment. The capital stock is \$15,000. John G. Hughes, Haddonfield, N. J., and Bernard A. Iloway, 6633 Green Street, Philadelphia, are incorporators.

The York Ferro-Alloys Co., York, Pa., has been chartered with a capital stock of \$50,000 to manufacture alloys. The incorporators are Robert W. Emerton and George Marlow, York, Pa., and George J. Haenn, Markham, Pa.

The Houpert Machine Co., Philadelphia, has been incorporated with a capital stock of \$25,000 to manufacture

machine and engine parts. The incorporators are Alfred G. Rinn, 139 North Fifteenth Street, Philadelphia; William Oxley, 139 North Fifteenth Street, Philadelphia, and Henri J. Hupert, Mamaroneck, N. Y.

The Charles B. Scott Co., Scranton, Pa., has been incorporated with a capital stock of \$250,000 to manufacture machinery, engines, electrical supplies, automobile, mine and mill parts. The incorporators are Charles B., F. Stewart and C. Ezra Scott, all of Scranton.

C. S. Haskell, Inc., 1520 Kater Street, Philadelphia, manufacturer of pipe organs and mechanism, has acquired property at the White Horse Pike and Haddon Avenue, Camden, N. J., as site for a new plant.

The Souder, Hornsley Co., Tamaqua, Pa., has been incorporated with a capital stock of \$100,000 by Robert H. Souder, John H. Hornsley and Daniel F. Graham, to manufacture heat control apparatus.

Expansion work for increased operating facilities is under way at the plant of the York Mfg. Co., York, Pa., manufacturer of refrigerating machinery. Ground has been broken for a three-story factory, 22 x 72 ft., to cost \$40,000. A one-story foundry, 50 x 105 ft., will be constructed on West York Street, and plans are being prepared for a one-story pipe shop, 30 x 140 ft., to cost \$20,000.

The Elliott-Blair Steel Co., New Castle, Pa., manufacturer of steel sheets, etc., has awarded contract to Parish Brothers, Wick Building, Youngstown, Ohio, for rebuilding the portion of its plant at Mercer, recently destroyed by fire. The work is estimated to cost \$30,000.

The General Engineering Works, 719 South Front Street, Philadelphia, has filed plans for its proposed one-story machine and boiler shop, 57 x 148 ft., to cost \$12,000.

The Lenni Steel Co., 130 South Fifteenth Street, Philadelphia, has increased its capital stock from \$600,000 to \$1,000,000.

The Lutz Co., Thirty-first Street and Grays Ferry Road, Philadelphia, manufacturer of quilting machinery, etc., is taking bids for additions to its branch works at Twenty-first Street and Hays Avenue, Camden, N. J., to consist of a one-story foundry, 50 x 68 ft., chipping shop for metal work, and pattern shop.

The Howard Garage & Machine Co., Philadelphia, has been incorporated with a capital stock of \$20,000 by Hans Sorensen, 2549 North Sixteenth Street; Gustav Deling and Paul M. Rosenoway.

The Hale & Kilburn Corporation, Eighteenth Street and Lehigh Avenue, Philadelphia, manufacturer of pressed metal automobile parts and units, auto bodies, etc., has arranged for a bond issue of \$1,500,000 for additional working capital.

The Quaker City Rubber Co., 629 Market Street, Philadelphia, manufacturer of automobile tires, etc., has had plans prepared for a two-story brick and reinforced-concrete plant, 140 x 160 ft., at Wissinoming, to cost \$100,000.

The Bressman Tire & Rubber Co., Philadelphia, has purchased the three-story building at 250-52 North Broad Street, and plans to occupy it about Dec. 1, when leases of the present tenants expire. The property is 72 x 183 ft., and assessed at \$275,000.

The Philadelphia Engineering & Machinery Co., Philadelphia, has been incorporated in Delaware with a capital stock of \$100,000 by E. M. MacFarland, F. R. Hansell, Land Title Building, and associates, to manufacture machinery and parts.

A power plant, 46 x 46 ft., for factory operation will be constructed by E. C. Beetem & Sons, Carlisle, Pa., at their local carpet works. It will be one-story, of brick and concrete.

The Altoona & Northern Railroad Co., Altoona, Pa., is planning the rebuilding of its local repair shops, recently damaged by fire. The work is estimated to cost \$20,000.

Buffalo

BUFFALO, June 9.

The Kek Mfg. Company, Buffalo, N. Y., has filed articles of incorporation with a capitalization of \$100,000 to manufacture grinding machinery. The directors are Charles P. Deane and Henry B. Lauman, 1372 Clinton Street, and Seward S. Wells, 145 Cottage Street, Buffalo.

The North East Electric Co., Rochester, has completed plans for a six-story factory, 61 x 206 ft., to be erected on Whitney Street. H. W. Fowler, 348 Whitney Street, is superintendent of construction.

The Carborundum Co., Niagara Falls, N. Y., will add a factory and storage building, 48 x 144 ft., one story, to its plant at Buffalo Avenue and Eighteenth Street, to cost

\$13,500. The Brown-Pollard Construction Co., Eighth Street and Pine Avenue, will erect the building.

Articles of incorporation have been filed by the Auto Device Mfg. Co., Buffalo. F. W. Miller and G. A. Loohn, Buffalo, and P. S. Wheaton, Kenmore, N. Y., are the incorporators. The capital stock is \$100,000.

The Norwich Wire Works, Norwich, N. Y., has increased its capital stock from \$125,000 to \$500,000. It is going forward with a one-story annex to its plant, 66 x 192 ft.

The Frazer & Jones Co., Syracuse, N. Y., will shortly commence work on an addition to its foundry, to cost \$40,000.

The North Mfg. Co., Buffalo, has been incorporated by M. S. North, J. F. Stokes and A. C. McCarthy with a capital stock of \$25,000 to manufacture machinery and supplies.

Incorporation papers have been issued to the Shull-Boltless-Clamp Corporation, Niagara Falls, N. Y., to manufacture machinery and implements. L. M. and R. C. and J. C. Shull are the incorporators. The active capital is \$25,250.

The Kam-Kaderbeck Co., Inc., Buffalo, has been incorporated with a capital stock of \$50,000 by H. A. Kam, H. A. Kam, Jr., and G. J. Kaderbeck, to manufacture mechanical specialties, etc.

The Reliable Stamping Co., 1400 Niagara Street, Buffalo, which has increased its capital stock from \$20,000 to \$40,000, has recently filed plans for a one-story addition to its metal-working plant on Lafayette Street, 36 x 90 ft., to cost \$10,000.

The Wilna Machine Co., 111 North Mechanic Street, Carthage, N. Y., is said to be planning for a two-story works, 50 x 80 ft., to cost \$25,000.

The Halstead Wire Co., Rome, N. Y., has been incorporated with a capital stock of \$50,000 by J. P. Halstead and H. T. Dyett, and F. W. Wallace, Plainfield, N. J., to manufacture wires and cables.

The Burdick-Stafford Electric Corporation, Lancaster, N. Y., has filed notice of change of name to the Burdick-Reynders Electric Co. *

In connection with its proposed plant at Binghamton, N. Y., the Hires Condensed Milk Co., 913 Arch Street, Philadelphia, is planning the establishment of a works for the manufacture of tin cans. The entire plant is estimated to cost about \$80,000.

The Standard-Marvel Co., Salamanca, N. Y., has been incorporated with a capital stock of \$10,000 by N. S. and D. J., and E. Y. Kilby, to manufacture vacuum cleaners, heating systems, etc.

The Lakeside Forge Co., Erie, Pa., is asking for bids on an addition to its plant for increasing office and shipping room. It is proposed to add a one-story monitor type building 104 x 81 x 104 ft., of steel and brick construction.

George W. Swift, Jr., Bordentown, N. J., manufacturer of machinery for paper mills, will build a one-story machine shop addition, 120 x 160 ft., to cost \$30,000.

Baltimore

BALTIMORE, June 9.

The Eastern Sanitary Supply Co., 116 South Eutaw Street, Baltimore, has been incorporated with \$50,000 capital stock to manufacture plumbing and other supplies. The incorporators are Richard M. Horsey, William T. Schlotterbeck, T. Herbert Marks and H. Lester Curtis.

The City Springs Works, Park Avenue and Preston Street, manufacturer of automobile springs, radiators, etc., will build a two-story plant, 150 x 200 ft., for the manufacture of springs at a cost of about \$18,000. It will be in the market for machinery at a later date. William Haselherst is proprietor.

The Mallory Machine Co., 522 Light Street, Baltimore, manufacturer of boilers and engines, has taken over some property of the Evans Marble Co., which will be dismantled.

Disharoon & Heath, Inc., Salisbury, Md., has been incorporated with \$10,000 capital stock to manufacture engines, etc. The incorporators include T. Ray and O. Cleveland.

Plans to establish a foundry are understood to be contemplated by C. L. Probst and others, Lynchburg, Va.

The Norfolk-Hampton Roads Dry Dock & Ship Repair Co., Norfolk, Va., has plans for erecting a plant for the repair and construction of both steel and wooden vessels.

The Standard Oil Co., Pratt Street, Baltimore, will build a one-story air compressor plant, 40 x 68 ft., at Fourth Avenue near First Street.

The Maryland Bolt & Forge Co., Falls Road, Baltimore, has completed plans for an addition, 80 x 100 ft., to cost about \$11,000.

The illustration shows a 10-ton electrically operated locomotive crane equipped with a yard type V clam shell bucket handling borings and turnings at the plant of the National Acme Co., Cleveland. The manufacturer of the crane, the Orton & Steinbrenner Co., 608 South Dearborn Street, Chicago, states that a carload of this material has been handled with this equipment in one hour's time.



The Dyes Tire Shoe Machinery Co., Washington, D. C., has increased its capital stock from \$150,000 to \$300,000.

The Coleman-Miller Electric Co., 516 West Grace Street, Richmond, Va., has been organized by James A. Miller and associates to manufacture electrical appliances and equipment.

The Lanham Cotton Cultivator Co., Atlanta, Ga., is planning for the construction of a local plant.

The Dixie Motor Co., Granby Street, Norfolk, Va., is having plans prepared for a two-story service and repair works, 49 x 104 ft., at Jamestown Boulevard and Manteo Street, to cost \$35,000.

The W. J. Westbrook Elevator Co., Greensboro, N. C., is planning the establishment of a plant for the manufacture of passenger and freight elevators.

The Automotive Co., Winston-Salem, N. C., has been incorporated with a capital stock of \$125,000 by J. L. and P. Gilmer, and James A. Gray, to manufacture automobile parts, etc.

The Bureau of Yards and Docks, Navy Department, Washington, has had plans prepared for an industrial building at the Hampton Roads, Va., yards, to cost \$325,000.

The Greer Transportation & Machine Co., Greer, S. C., has been incorporated with a capital stock of \$25,000 by C. E. Smith, Greer; C. E. Crosby, Greenville, and J. L. Sanders, Chester.

The Charleston Sewing Machine Co., Charleston, S. C., has been incorporated with a capital stock of \$10,000 by James Allan and L. J. Yates, to manufacture sewing machine apparatus and parts.

The Foundation Co., New York, is said to be planning for the closing of its shipyard at Savannah, Ga., following the launching of nine more vessels, now on the ways. It has been maintaining a force of about 2600 men at the plant, and this number will be reduced about one-half. It is estimated that the bulk of work can be completed at the yard in the next eight weeks, allowing the shut-down early in August. The company's contract for 38 vessels for the French Government has been reduced to 28 ships.

The Charlotte Wagon & Auto Co., Charlotte, N. C., will build a one-story works, 125 x 250 ft., for the manufacture of automobile bodies, to cost about \$25,000. Frank A. Owens is president and manager.

The Hill-Field Body Co., Salem, Va., is considering the erection of a plant for the manufacture of steel motor truck bodies. It will have a capacity of about 10 bodies per day, and is estimated to cost \$50,000. H. B. Rockhill is president.

Chicago

CHICAGO, June 9.

May business was good for most Chicago dealers and, in the case of several, was the best of any month since the armistice. The volume of orders placed thus far in June portends that the record for this month will be even better than that of May. A number of contracts of encouraging proportions have been closed recently. A firm whose name is withheld has ordered 15 all-gear-head motor-driven engine lathes, including one 24 in. x 12 ft., one 20 in. x 10 ft., three 18 in. x 8 ft., six 16 in. x 6 ft., two 14 in. x 6 ft., and two 12 in. x 6 ft. machines. The Bucyrus Co., South Milwaukee, Wis., which has had a long list before the trade for several months, has purchased some of the equipment desired, including five turret lathes, two slotting machines and two vertical boring mills. The A. B. Dick Co., 736 West Jackson Boulevard, Chicago, has bought four engine lathes, one punch press, and about \$5,000 worth of high speed sensitive drills, and is understood to be inquiring for additional equipment, including a vertical milling machine and a universal cutter grinding machine.

The automobile industry continues the most active buyer of tools. The Teeter-Hartley Motor Co., Hagerstown, Ind., has purchased eight turret lathes and a few other miscellaneous machines. The Studebaker Corporation, South Bend, Ind., has purchased additional equipment for its tool room requirements, including four shapers, four grinding machines, three Liberty planers, a universal horizontal boring

machine, and is expected to place other tool room equipment. The Mitchell Motors Co., Racine, Wis., has purchased two 20-in. automatic turret lathes. The Haynes Automobile Co., Kokomo, Ind., which is building a new four-story plant, 500 ft. by 150 ft., has announced that it will purchase several hundred thousand dollars' worth of machinery and equipment.

The railroads continue inactive with the exception of the Pennsylvania, which is reported to have purchased some tools for its Logansport, Ind., and Columbus, Ohio, shops.

The trade has received an announcement to the effect that Anton C. Herskind, secretary of the Pollsh Commission of Denmark, desires to make connections with machinery houses for the sale of machinery and tools in Poland. Mr. Herskind, whose address is 1382 Woolworth Building, New York, expects to leave for Copenhagen on June 19.

The Milwaukee office of the Federal Machinery Sales Co. has been given the exclusive agency for the Sidney Machine Tool Co. in the State of Wisconsin.

The Ordnance Department of the Army plans to fit up sales rooms in its Chicago storage depot (the old Symington Chicago Corporation plant), Seventy-fourth Street and Ashland Avenue, for the display of tools and machinery which the Government wishes to dispose of. When the terms under which this equipment will be sold are finally decided upon, it is expected that a number of auction sales will be held to get the public accustomed to going to the depot, which is in a remote part of the city.

Building permits taken out in Chicago in May exceeded the number issued in any month this year, and likewise were in excess of those for the same month in 1918. There were 827 permits granted in May, 1919, involving 23,343 ft. of frontage and a total cost of \$7,130,000, as against 379 permits issued in May, 1918, involving 11,822 ft. of frontage and a cost of \$3,752,500.

The All-American Truck Co., manufacturer of automobile trucks, has purchased 34 acres at the southwest corner of Grand Avenue and Natchez Street, on the Chicago, Milwaukee & St. Paul, Chicago, and plans to begin the construction of a plant at once, to cost \$200,000. The All-American factory will employ American citizens only.

The Chicago Roller Skate Co. has purchased a tract, 100 x 550 ft., at the southwest corner of West Lake Street and Forty-second Avenue, Chicago, where it will erect a one-story machine shop to cost \$75,000.

The Autographic Register Co. has awarded a general contract to the E. W. Sproul Co. for the construction of a two-story brick and concrete plant, 60 x 65 ft., at 4241 South Western Avenue, Chicago, to cost \$20,000.

The Trindl Machine Works has leased a one-story plant, 72 x 192 ft., to be erected at 2917-2923 South Wabash Avenue, Chicago, to cost about \$60,000.

The Central Trust Co. of Illinois will build a service station for the Chevrolet Motor Co. on the south side of Thirtieth Street, between Michigan Boulevard and Wabash Avenue, Chicago. It will be one story, 145 x 175 ft., and will cost \$50,000.

H. W. Caldwell & Sons, machinists, have awarded a contract for the construction of a one-story plant, 55 x 180 and 59 x 202 ft., at 1709-18 South Western Avenue, Chicago, to cost \$100,000.

The Kettler-Elliott Erection Co. has awarded a contract for the erection of a one-story forge and machine shop, 114 x 181 ft., at 3153-3161 South California Avenue, Chicago, at a cost of \$30,000.

The Pla-Rite Mfg. Works, 43 North Kellogg Street, Galesburg, Ill., has commenced the manufacture of phonograph electric stops, which work with dry cell batteries, toy windmills and auto danger signals, and other novelties.

The United Iron Works plans to increase its capital stock from \$650,000 to \$2,500,000. This action may result in the enlargement of the company's plant at Aurora, Ill.

Charles A. Carlisle, Mishawaka, Ind., who recently purchased the Perkins Windmill & Gas Engine Co., has bought a building formerly occupied by the St. Joseph Mfg. Co., opposite the Perkins plant.

The Macey Co., Grand Rapids, Mich., has awarded a contract for the erection of a three-story addition to be used for the manufacture of steel filing cabinets at a cost of \$75,000.

The United Electric Mfg. Co., Adrian, Mich., will build a one-story plant to cost between \$75,000 and \$100,000.

The Liquid Compressed Steel Co., Keokuk, Iowa, is building a plant on the Mississippi River off Railroad Street.

The Quincy Casting Co., Cedar Rapids, Iowa, has let a contract for the construction of a one-story foundry, 112 x 152 ft., at North Seventeenth Street, between F and G Avenues.

The Nebraska Foundry & Mfg. Co., Fremont, Neb., will begin the erection of a plant at once in the southeastern part of that city.

The Metal Products Co., Salina, Kans., has been purchased by F. H. Chaudoin and C. R. Watson.

The Soo Machine & Automobile Co., Sault Ste. Marie, has purchased a site upon which it plans to erect a \$25,000 addition.

The Interstate Foundry Co., Waterloo, Iowa, has been incorporated with a capital stock of \$25,000.

The Union Drop Forge Co., 358 West Grand Avenue, Chicago, has filed plans for the erection of a new one-story brick shop, 1652-54 North Kostner Street.

The Donald Butler Airplane Co., Minneapolis, Minn., has been incorporated in Delaware with capital of \$50,000 by Archibald G. Donald, Clifford G. Schlitz and William A. Buttermann, Minneapolis, to manufacture airplanes and other aircraft.

R. R. Howell & Co., Thirty-first Avenue, Minneapolis, Minn., are planning for the erection of a new one-story machine shop, 37 x 39 ft., on Thirty-seventh Avenue, near Fourth Street.

The American Super-Steel Corporation, Duluth, Minn., has increased its capital stock from \$10,000 to \$125,000.

The Auto Power Mfg. Co., First National Bank Building, Omaha, Neb., is planning for the erection of a three-story and basement works, 80 x 200 ft., to cost about \$150,000.

New England

Boston, June 9.

A manufacturer of planers reports that the number of inquiries now being received is exceptionally large. Actual orders have been few since the armistice, but inquiries, including not a few from abroad, indicate to this manufacturer that plenty of business is in the air. The increased interest did not manifest itself until the past two or three weeks.

Walden-Worcester, Inc., Worcester, Mass., manufacturer of wrenches, has acquired three acres of land on Shrewsbury Street, near Althinson Street, and close to the Boston & Albany Railroad, and will erect a new factory on the premises this season. The building will be four stories, of brick mill construction, 56 x 400 ft. At present the business is scattered in several Worcester buildings. Comparatively little new equipment will be required in the beginning, it is stated, the purpose being to add machinery gradually.

The Morgan Spring Co., Worcester, Mass., will build a two-story addition, 80 x 150 ft., to its plant at Greendale. It will be devoted to the company's subsidiary, the Miller Wire Cloth Co., now located at 72 Commercial Street, and now merged into the Morgan company. For the present the Miller company will occupy a recently completed building of the Morgan works, originally planned for a rolling mill, which will be used for other purposes when the contemplated structure is completed.

The business of C. O. Johnson & Sons, Worcester, Mass., manufacturers of fine steel wires, will hereafter be conducted as the Worcester Wire Co. For the present the partnership will consist of Victor E. Runo, Charles O. Johnson, Nils Bjork, Charles D. Johnson and Bernard A. Johnson. Charles O. Johnson was formerly a department superintendent for the Spencer Wire Co. The company is now building a factory at Ludlow and Graham streets, which will be equipped with new machinery for the manufacture of fine grades of wire.

The General Fire Extinguisher Co., West Exchange Street, Providence, R. I., has awarded a contract to the C. I. Bigney Construction Co., 898 Westminster Street, Providence, for the construction of a two-story, brick and steel addition, 60 x 70 ft., to be used as a pipe bending works. Construction has been started on a three-story shop, 70 x 120 ft., to be equipped for pipe work.

The Colonial Brush Mfg. Co., Hartford, Conn., has been incorporated with a capital stock of \$50,000 by Frank A. Hagarty, David B. Henney and J. A. Burns, to manufacture wire brushes and kindred specialties.

The Mianus Motor Works, Inc., Stamford, Conn., has increased its capital stock by an amount of \$194,700, making a total capitalization of \$494,700.

The American Duplex Signal Co., 505 Park Avenue, Bridgeport, Conn., recently incorporated to manufacture signal devices, has perfected its organization with Frank Pekas as president; Andrew Simon, vice-president; George H. Wood, secretary, and Julius Batha, treasurer.

The hardware manufacturing shop of Charles H. Calor, Forestville Avenue, Plainville, Conn., was damaged by fire on May 17, with loss estimated at \$6,000.

The Smith Plumbing & Auto Metal Co., Inc., Worthing-

ton Street, Springfield, Mass., is planning for the erection of a one-story addition to its metal working plant, 58 x 100 ft., to cost about \$17,000.

The American Sheet Metal Works, Waterbury, Mass., has removed its plant from Field Street to 61 Canal Street, for increased operating facilities.

The New Haven Special Machinery Co., New Haven, Conn., has filed notice of dissolution.

The Continental Bronze Co., 48 Oxford Street, Providence, R. I., has filed notice of organization to manufacture bronze goods. John J. Ward, 1 Deerfield Terrace, and George P. Stoecker, Pawtucket, head the company.

Landers, Frary & Clark, New Britain, Conn., have awarded a contract to the Ellison Construction Co., 120 Wellington Avenue, Hartford, for the erection of a two-story addition on High Street, 50 x 100 ft.

The Billings & Spencer Co., Park and Laurel streets, Hartford, Conn., will build a four-story addition to its plant, 16 x 30 ft., and a one-story foundry, 60 x 80 ft., both estimated to cost \$25,000.

The Yale Tire & Rubber Co., 845 Dixwell Avenue, Hamden, Conn., recently incorporated to manufacture tire and rubber products, has perfected its organization with paid-up capital of \$100,000, and Joseph E. Hubinger as president; William N. Sage, first vice-president; George P. Smith, treasurer, and M. Leon Smith, secretary.

The Electric Specialty Co., South Street, Stamford, Conn., has filed plans for the erection of an addition to its plant to cost about \$8,000.

The Colonial Automobile Co., 1279 Main street, Hartford, Conn., has acquired property at 105 Ann Street, and plans the erection of a new two-story and basement building, 60 x 160 ft., to be used in part as a service works and machine repair shop. It is proposed to build as soon as existing property leases expire.

The Metal Production Equipment Co., Springfield, Mass., has been purchased by the Baush Machine Tool Co., Springfield, and the business will be continued under the name of Baush Machine Tool Co., Metals Division.

The V. E. Lapointe Mfg. Co., Hartford, Conn., has moved its plant and office to Manchester, Conn.

Cleveland

CLEVELAND, June 9.

The local machinery was fairly active in the past week, although there was no round lot buying. Manufacturers and dealers report a good volume of small orders, with the bulk of the business still from the automobile field. The demand from rubber manufacturers for machinery used in making tire molds continues active, and new business includes orders from the Firestone Tire & Rubber Co., aggregating \$50,000. The largest new inquiry is for 15 machines from an Ohio maker of automobile parts. One local company making turret lathes, which has been operating its plant for some time at two-thirds of capacity, reports that orders have recently increased to such an extent that it is now making some shipments from stock. Small screw machines are in good demand. Some dealers are complaining of the scarcity of good used machinery available at reasonable prices.

The Republic Motor Truck Co., Alma, Mich., has acquired a 76-acre site east of Cleveland on Babbitt and Upson roads, and the Nickel Plate and New York Central Railroad. It will move its executive offices to Cleveland, but no definite information has been given out as to the extent to which it will carry on manufacturing operations in this city. The Torbensen Axle Co. and other subsidiary companies are now located in Cleveland. Contract for a building on the new site has been placed with Westinghouse Church Kerr & Co., New York.

The Crucible Steel Castings Co., Champlain Avenue, Cleveland, will erect an electric steel foundry on a 7-acre site, which it has purchased on the Big Four Railroad and Almira Avenue, near Dennison Avenue, S. W. It contemplates the erection of its new plant early in the fall, and expects to install two electric furnaces. It has a 1-ton Heroult electric furnace in its present plant.

The Cleveland Metal Products Co. will enlarge its Ivanhoe Road plant by adding two additional stories to present buildings and erecting another structure. The contract has been placed with the George S. Rider Co., Cleveland.

The Jones Gear Co., Cleveland, has placed a contract for the erection of its new plant, which includes a factory 110 x 310 ft., and a two-story office building, 30 x 100 ft. on an 11-acre site, at Wayside Road and the Nickel Plate Railroad.

The Superior Foundry Co., Cleveland, has placed contract for a one-story addition, 60 x 131 ft.

The Elyria Machine Co., Elyria, Ohio, has transferred its shell department to the manufacture of steel bottles for containers for acetylene and other gases. It is expected that the entire capacity of the plant will be used shortly in making these products.

The Macultivator Co., Sandusky, Ohio, has been incorporated with a capital stock of \$500,000 to manufacture motor driven farm cultivators, and has taken over for temporary quarters the plant formerly occupied by the Ohio Engineering Co. C. S. McCarthy, Jr., designer of the cultivator, is president and general manager, and C. A. Uthe, secretary and treasurer.

The Toledo Factories Building Co., Toledo, is contemplating the erection of a \$100,000 addition to its present building, which is occupied by small manufacturers, largely in metal-working lines.

The Bryan Washing Machine Co., Bryan, Ohio, has been incorporated with a capital stock of \$50,000 to manufacture electric washing machines, and contemplates establishing a plant shortly. E. C. Carroll, N. W. Carroll, and Harry Huffman, are interested.

Detroit

DETROIT, June 9.

Machine-tool dealers report a constantly increasing business with large orders and numerous inquiries, principally from automotive plants. Manufacturers of automobiles, trucks, and tractors in the immediate vicinity of Detroit are planning the expenditure of more than \$50,000,000 in the next few months in additions to their plants. Smaller concerns have announced additions to plants and equipment totaling between \$5,000,000 and \$10,000,000.

The National Spring & Wire Co., Chicago, will establish a plant in Grand Rapids, Mich., to employ 1000 to 1200 men. It manufactures upholstery springs for automobiles and other specialties, and will build a four-story factory, 85 x 500 ft., at an estimated cost of \$200,000.

The Wolverine Forge Drill Co., Ypsilanti, Mich., has been organized and will erect a plant. George J. Crosman, president Crosman Stamping Co., Ypsilanti, is president of the new concern.

The Union Motor Truck Co., Bay City, Mich., plans to increase its capital stock to \$500,000 to allow for expansion. Howard P. Woodworth is head of the concern.

The Triangle Motor Truck Co., St. Johns, Mich., has increased its capital stock from \$100,000 to \$200,000 and will erect an addition to its plant.

The Homer Furnace Co. will locate in Coldwater, where a site and a plant will be furnished by the city.

Work is under way on the new plant of the Liberty Motor Car Co., Detroit. The main assembly building will be 120 x 600 ft.; stock building, 60 x 320 ft., and a two-story office building, 50 x 200 ft. It will have a capacity of 80 cars per day. Percy Owen is president.

The United Steel & Wire Co., Battle Creek, Mich., is constructing three additions to its plant. G. J. Genebach is president and general manager.

The Crystal Alloys Corporation, Detroit, has been succeeded by the United Broach & Machine Co., which will continue the manufacture of the Crystal Alloys Broaches and also tools, fixtures and special machinery. J. R. Brehmer is president.

The Wilson Body Co., Bay City, Mich., is preparing plans for an addition to its plant.

The Lehman Precision Grinding Co., Detroit, has been organized to manufacture machinery and engage in a general grinding and machine shop business. The organizers are S. Lehman, Henry Rohr, and Clarence A. Brown.

The Phoenix Mfg. Co., Detroit, has been organized to manufacture machine steel and other metal products. The organizers are William Wulf, Redford; Kenneth A. Morrison, Detroit, and Lloyd M. Marlin.

The Belding Foundry Co., Belding, Mich., maker of special engine cylinders, manifolds, radiators, etc., is building an addition, 75 x 130 ft., to its foundry and installing another cupola which will give it a daily capacity of 40 to 50 tons.

The Transport Truck Co., Mt. Pleasant, Mich., will build a new one-story plant, 100 x 300 ft., for the manufacture of motor trucks, parts, etc. A power plant will also be provided. The cost of the works is estimated at \$100,000.

The Buick Motor Co., Industrial Avenue, Detroit, has completed plans for a new two-story addition, 40 x 89 ft.

Cincinnati

CINCINNATI, June 9.

It is reported that a local firm has received a large order for milling machines for shipment to France. Some machines built on a former order and which have been held up will be forwarded at once. Orders from other European countries show but little if any improvement, although inquiries are encouraging. Recently a machinery dealer from Buenos Aires, Argentina, visited this section and while here placed orders for a number of machine tools. Inquiries have also been received lately through New York exporters from Uruguay and Brazil, and machine-tool builders are taking more interest in the South American field. Domestic orders are rather scattered, but are probably a little more numerous. Most of them are for single tools. Shipments of machine tools to Japan are now going forward quite freely. Some of these machines were ordered in 1917. A number of inquiries from Japan are also reported.

The boiler and tank business is dull, but some business is under negotiation which may develop into orders within the next few days.

The Ferro Concrete Construction Co., Cincinnati, has been awarded a contract by the Standard Oil Co. for a distributing station to be erected on Spring Grove Avenue. The improvement, which is estimated to cost \$400,000, will include a boiler and pump room, garage and repair shop, warehouse and a number of tanks. Ralph A. Tingle is local manager.

The H. L. Brown Fence Co., Oakley-Cincinnati, has let contract for a one-story brick addition, 26 x 115 ft.

Quinn & Co., 222 East Ninth Street, Cincinnati, are in the market for a Corliss engine, with diameter of cylinder from 22-in. to 30-in.

The Moelane Mfg. Co., Hamilton, Ohio, has been formed to manufacture small refrigerating outfits. Allen W. Marks is president.

The Special Tool Engineering Co., Dayton, Ohio, has increased its capital stock from \$50,000 to \$150,000, and will greatly enlarge its business. It manufactures automobile specialties and will install considerable new machinery in a plant to be erected this summer.

The Maxwell Motor Co., Dayton, has commenced work of enlarging its foundry at an estimated cost of \$100,000.

The Excelsior Drill & Mfg. Co., Springfield, Ohio, has been incorporated with \$10,000 capital stock by George M. Winwood and others. Nothing is yet known as to its manufacturing plans.

The Robbins & Myers Co., Springfield, Ohio, is having plans prepared for a foundry to be erected near its main plant.

The Columbus Tire & Rubber Co., Columbus, Ohio, will erect a plant on West Goodale Street for the manufacture of and automobile tires.

The Moore Mfg. Co., tool maker, is removing its plant from Indianapolis to Newark, Ohio.

Work has been commenced on the new factory for the Dayton Fan & Motor Co., Dayton, Ohio. It will be 82 x 150, five stories, of reinforced concrete.

The American Seeding Machine Co., Springfield, Ohio, has let contract for an addition to its foundry.

The International Harvester Co., Chicago, has acquired the plant of the Chattanooga Plow Co., Chattanooga, Tenn., manufacturer of chilled and disk plows, cane mills, etc., and will continue the operation as a subsidiary organization. The present name, it is understood, will be maintained.

The Southern Foundry & Mfg. Co., Owensboro, Ky., has been incorporated with a capital stock of \$400,000 by E. L. Burns, M. F. McCombs and J. J. Trefz, to manufacture castings and other iron and steel products.

The Federal Can Co., Nashville, Tenn., has been incorporated with a capital stock of \$100,000 by Charles Brown, H. G. Hill and V. S. Tupper, to manufacture tin cans and other metal products.

Milwaukee

MILWAUKEE, June 9.

The machine-tool trade continues to develop a fair volume of orders and in general may be called satisfactory. Requirements that are being placed with local makers consist mostly of orders for only one or two machines. Milling machine builders continue to receive a steady run of new business from the automotive industries, but orders from other divisions of the metal-working trade are reported somewhat slack.

The Briggs & Stratton Co., 1047 Louis Avenue, Milwau-

kee, which will increase its capacity 100 per cent, expects to award contracts this week for additions which will cost between \$400,000 and \$500,000, including equipment. Herman J. Esser, architect and industrial engineer, 402 Camp Building, is taking bids on a five-story reinforced concrete, steel and brick manufacturing building, 60 x 185 ft., duplicating the present main shop. A four-story office, laboratory and engineering building, 69 x 120 ft., also will be provided. A considerable requirement of lathes, drill presses, milling machines, automatics and other equipment will be placed soon. Frank W. Manegold is secretary-treasurer.

The Four Wheel Drive Auto Co., Clintonville, Wis., is perfecting the organization of a new Canadian corporation which will build a branch plant at Kitchener, Ont., costing about \$100,000. The first unit will be 100 x 200 ft., one story, and equipped mainly for assembling trucks, all parts to be supplied from the main works at Clintonville. The new corporation, to be known as the Canadian F. W. D. Co., has a capital stock of \$200,000, of which the Wisconsin corporation owns one-half and Canadian interests the remainder. J. D. Cotton, vice-president of the Clintonville company, is president of the Canadian corporation and the other officers are: Vice-president and sales manager, Henry Nyberg; secretary, Archie Kerr; treasurer, W. G. Cleghorn; directors, E. C. Kahel, W. T. Barrie and H. J. Sims. It is hoped to break ground for the new plant by June 20.

The Frank L. Wells Co., Kenosha, Wis., founder and machinist, has awarded contracts for the erection of a one-story brick and steel machine shop addition, 60 x 120 ft., with sawtooth roof, at South Street and Maiden Lane. The building and equipment will cost about \$50,000. The Arneson Foundry Co., whose works adjoin those of the Wells company, is contemplating the erection of a plant on a new site and if this plan is carried out, the Wells company will take over its present shop buildings.

The Wallis Tractor Co., Racine, Wis., which closed May 1 for 39 days to re-arrange machinery and equipment and make new installations, has resumed operations with an increased force and enlarged production schedule. The company has decided to operate on a straight 8-hr. basis, with no overtime, and for the present will employ a single shift. It was to carry out this plan that the works has been thoroughly overhauled.

The Barlow & Seelig Mfg. Co., Ripon, Wis., manufacturer of domestic washing machines and appliances, has plans by Auler & Jensen, Oshkosh, Wis., architects, for a one-story addition, 50 x 120 ft., and a two-story office building, 32 x 60 ft. The improvements are estimated to cost about \$25,000.

The Aerial Cutlery Co., Marinette, Wis., has awarded the general contract to John Salen & Co., local, for the erection of a two-story, ell-shaped factory addition, 46 x 68 and 26 x 46 ft., designed by Derrick Hubert, architect, Menominee, Mich. Some additional equipment is being purchased.

The S. Miller Fruit Co., Marsfield, Wis., will build a \$50,000 cold storage warehouse, with new refrigerating plant, designed by Carpenter & Waldron, architects, Stock Exchange Building, Chicago. The building will be three stories and basement, 42 x 126 ft. of reinforced concrete, steel and brick.

The Fort Atkinson Auto Sales Co., Fort Atkinson, Wis., will make a 40 x 50-ft. addition to its machine shop. Roberts & Russell are the proprietors.

Otto Grunwald, Fond du Lac, Wis., has opened a machine shop at 39 Third Street, for commercial work and automobile repairs.

Pittsburgh

PITTSBURGH, June 9.

The Harkness-Hamilton Co., Bradford, Pa., capitalized at \$30,000, has been formed to manufacture under-reamers, bits, stems, sockets and other tools. The incorporators are S. J. Cullinan, Jr., Ardmore, Okla.; R. W. Hamilton and A. E. Harkness, Bradford.

The Keystone Die & Mfg. Co., Pittsburgh, with a capital stock of \$30,000, has been incorporated to manufacture dies, special tools, machinery, etc. The incorporators are Joseph J. Szepe, Millvale, Pa.; John M. Hickley, 1705 Laurel Street, Pittsburgh; William H. Lagemann, Jr., 206 Beltzhoover Avenue, Pittsburgh.

The West Virginia Metal Products Corporation, Fairmont, W. Va., has been chartered with \$2,500,000 capital stock and has acquired a site for a plant to cost about \$1,500,000, including rolling mills, etc. J. E. Watson is president and G. M. Alexander secretary.

The Guyan Machine Works, Guyan, W. Va., wants quotations on small air compressors, ½- to 1½-in. bolt cutters

and index centers for milling machine and milling cutters.

The establishment of a plant for the manufacture of elevators is contemplated by the Westbrook Elevator Co., Greensboro, N. C.

The Thomas Donaldson Transfer & Storage Co., 840 West North Avenue, Pittsburgh, will build a one-story service and repair works, 100 x 227 ft., for commercial motor trucks at Western Avenue and Bidwell Street, to cost \$20,000. Thomas Donaldson is president.

The Sterling Steel Foundries Co., Braddock, Pa., is said to be planning extensive improvements to provide increased capacity. George W. Smith is president.

The Consolidated Coal Co., Berryburg, W. Va., is planning the rebuilding of its coal tipples, recently destroyed by fire with loss estimated at \$40,000. C. H. Tarleton is manager.

The Engineering Service Co., Johnstown, Pa., has been incorporated with a capital stock of \$10,000 by H. S. Evans, 437 Park Avenue, and George S. Vickroy, Johnstown, and W. J. Vickroy, Windber, to manufacture mechanical specialties.

Indianapolis

INDIANAPOLIS, June 9.

The New Process Iron & Steel Co., Noblesville, Ind., has been incorporated with \$200,000 capital stock to manufacture steel products. The directors are S. H. Eagle, A. B. Offenbacher and James Hundley.

The William Small Co., Indianapolis, manufacturer of automobiles, has purchased land at Washington Street and Belmont Avenue as a site for a new factory. The tract comprises over 18 acres.

The Colonial Tire & Rubber Co., Anderson, Ind., has increased its capital stock from \$750,000 to \$2,000,000.

Millsbaugh & Irish, Indianapolis, builders of automobile closed bodies, have bought seven buildings with 60,000 sq. ft. of space from the Mals Automobile Co.

St. Louis

ST. LOUIS, June 9.

The Southern Wheel Co., St. Louis, has begun work on the construction of a new plant to which its present equipment will be removed and much additional machinery installed to increase the output.

The St. Louis Mfg. Corporation, St. Louis, a subsidiary of the General Motors Corporation, has taken out a permit for the construction of additional units on the site of the branch plant now under construction, including a \$500,000 power plant.

The Midland Valley Coal Co., Keota, Okla., A. U. Davidson and others interested, is reported in the market for about \$20,000 worth of coal mining and power plant equipment.

Wallace B. LeBlanc, Baton Rouge, La., is reported in the market for machinery for the manufacture of concrete tile in large sizes and quantities.

The Liberty Cotton Oil Co., Texarkana, Ark., Henry Moors, Jr., president, will equip a cotton oil mill, installing machinery, boilers and engines estimated to cost about \$90,000.

The United Iron Works, Kansas City, Mo., plans to increase its capital stock from \$650,000 to \$2,500,000 and increase its capacity and operations.

The Island Refining Corporation, New Orleans, La., Geo. A. Burrell, Galveston, Tex., president, will equip an oil refinery with a daily capacity of 5,000 bbl. It has a capital stock of \$10,000,000 and plans for an ultimate annual capacity of 5,500,000 bbl.

The Trione Piston Ring Co., St. Louis, Pontiac Building, will erect a plant of about 50,000 sq. ft. in five buildings for the manufacture of piston rings. LaBeaume & Klein are the architects.

The Economy Car Appliance Co., Tulsa, Okla., will equip a plant to manufacture automobile appliances. About \$100,000 will be invested. Samuel Boorstin and others are interested.

The Louisiana Railroad & Navigation Co., Shreveport, La., will rebuild its burned shop, the buildings and machinery involving about \$100,000.

The Wood & Lane Co., 915 Olive Street, St. Louis, is reported in the market for horizontal steam turbine generators with motor driven surface condenser and other equipment.

The Jahncke Dry Dock & Ship Repair Co., New Orleans, La., is in the market for a 60-in. horizontal boring mill, overhead shop crane, 10-ft. vertical boring mill, turret lathe, 48-in. shear, horizontal punch, 12-in. throat; splitting shear, 16-ft. plate plane, 8-ft. roll, 15-ft. counter sink, 18-in. bulldozer, 14-ft. flanging clamp, 30-in. circular saw, 20-ft. roll, 6-ft. radial drill, 5-in. vertical boring mill, angle shear and other machine shop and boiler plant tools.

The Board of Public Service, St. Louis, will require electric cranes and other conveying machinery for an additional unit of the municipal dock for the construction of which \$300,000 has been appropriated. James A. Hooke, director of public utilities, 306 City Hall, should be addressed.

The Universal Motortruck & Tractor Engine Co., Syndicate Trust Building, St. Louis, has acquired a group of buildings at Suburban Garden and will convert them into a plant for the manufacture of motors. D. T. Timberlake, chief engineer for the company, is supervising the work.

The St. Louis Mfg. Corporation has let contracts to the H. Haeseler Building & Constructing Company, 621 Wainright Building, St. Louis, for the construction of a plant at 5437-5511 Natural Bridge Road. A brick and steel building, 426 x 432 ft., will be erected at a cost of about \$400,000 and a dry kiln, 84 x 443 ft., at a cost of \$100,000.

The Dixie Battery & Mfg. Co., Pine Bluff, Ark., manufacturer of batteries and other electrical products, has increased its capital stock from \$12,000 to \$25,000.

The B. D. Schaad Machinery Co., Little Rock, Ark., is planning for the erection of a one-story addition, 40 x 150 ft.

The J. B. Miner Saw Mfg. Co., Lumberton, Miss., is planning for the construction of a new one-story plant at Shreveport, La., 48 x 140 ft., for saw manufacture and repair work.

California

LOS ANGELES, June 9.

The demand for machinery supplies is showing an increase, largely due to the automobile business. Small machine tools for garages are in especially good call.

A few shipments of machinery are going forward to the Orient, particularly to Manila, but most of this is the result of orders placed many months ago. It is reported that very few new orders for export are being received.

The Southern California Edison Co., Los Angeles, has bought the 30,000 acres of land and plants at Shaver Lake from the Flume & Irrigation Co., Fresno, for \$2,000,000. It is proposed to develop an \$8,000,000 electric power project to supply Los Angeles with power.

The Western Steel & Engineering Co., San Francisco, has been incorporated with a capital stock of \$25,000 by C. D. Lewis, G. A. Fisher and H. D. Staley.

A. Swanton is erecting a one-story brick machine shop on Post near Laguna Street, at a cost of \$6,800.

The Golden West Motors Co., Sacramento, will increase the size of its plant.

The R. E. Reeder Welding & Machine Shop, Sacramento, has been incorporated under the name of Reeder's Welding Works.

John J. Belser, president and manager of the Honolulu Construction & Draying Co., will be in San Francisco early in June. He expects to purchase new machinery to be used in the preparation of road material and road building generally.

The Western Tool Mfg., Ogden, has been incorporated with a capital stock of \$99,000 by George L. Smith, Guy H. Stalker and Oral C. Smith to manufacture machinery.

The Pacific Trailer & Body Works, 849 San Pedro Street, Los Angeles, has been organized to manufacture automobile trailers, bodies, parts, etc. C. Madsen, 1237½ East Forty-second Street, and E. Bonde, 715 East Fifty-second Street, head the company.

The American Brake Shoe & Foundry Co., 1179 East Thirty-second Street, Los Angeles, has taken out a permit to build an extension to its foundry.

The Elevator Safety Appliance Co., Los Angeles, has been incorporated with a capital stock of \$100,000 by Luther E. Groat and Frederick F. Brush, to manufacture safety devices for elevator service.

The Board of Trustees, Union High School District, Calexico, Cal., has called for bids for machine shop equipment for the manual training department.

The E. W. Hall Electrical Co., Inc., Los Angeles, has been incorporated with a capital stock of \$10,000 by E. W.

Hall, Edna Goldson and Herman Barney, to manufacture electrical equipment.

Plans have been filed by A. Swanton, San Francisco, for the construction of a one-story, brick machine shop on North Post Street, near East Laguna Street, to cost about \$4,800.

The San Joaquin Light & Power Co., Fresno, Cal., has inaugurated preliminary work on its proposed new hydro-electric power plant near Big Sandy, vicinity of Auberry. It is estimated to cost about \$2,000,000, including equipment.

The Modern Novelty Die & Tool Mfg. Works, 1314-16 South Main Street, Los Angeles, has filed notice of organization to manufacture tools, machine parts, dies, etc. J. F. Kaufman, 324 East Sixty-fifth Street, and W. M. Oldenburgh, 1745 North Alexandria Avenue, head the company.

The Dohrmann Walker Co., Los Angeles, has been incorporated with a capital of \$200,000 by F. C. Dohrmann, Albert B. Walker, Frank E. Martin and William W. Morgan, to manufacture magnesite products.

Began & Rathkamp, 423 South California Street, San Gabriel, Cal., have taken out a permit to build a one-story machine shop.

The Board of Public Service, Knickerbocker Building, Los Angeles, will receive bids until 3 p. m., June 27, for electric generators, transformers, auxiliary electric equipment and apparatus, and hydraulic equipment for the municipal electric power plants. James P. Vroman is secretary.

The Pacific Northwest

SEATTLE, June 3.

The machine-tool market is not very active as shops are doing only for urgent needs. There is a general disposition to wait for some definite assurance that shipyards are to be given new contracts or renew old ones. Farm equipment is in excellent demand.

The Minam Lumber Co., La Grande, Ore., plans the erection of a new mill to cost about \$10,000. A. T. Hill is president.

The Hoffus Steel & Equipment Co., Seattle, will erect a new plant, construction to begin this year, according to Philip Kitchin, secretary and treasurer. Definite plans have not been worked out, but are expected to be completed within 30 days. Work of preparing the site is under way.

The Yeomans Mill Co., Fe Ell, Wash., will make extensive repairs to its sawmill. All of the old machinery, including boilers, will be replaced by new.

The Donovan Lumber Co.'s sawmill, Aberdeen, Wash., was recently burned with a loss of \$20,000. The major part of the damage was to the machinery and saws.

The plant of the Oregon Box & Mfg. Co., Portland, Ore., was destroyed in a recent fire with a loss of \$25,000. It will be rebuilt immediately. O. H. Schwerdtmann is manager.

Work has been started on the selection of machinery in the Foundation Co.'s shipyard in Portland to be shipped to France. The plant will be razed.

Self-adjusting and self-releasing wrenches and pliers will be manufactured in a factory to be built at Walla Walla, Wash., under patents recently issued to R. L. Besha of that city who has sold the manufacturing rights. Three acres have been donated for a plant and it is expected work will soon start on a building, 50 x 120 ft. The new organization will be known as the Walla Walla Tool & Wrench Co. Carlo Ponto is president.

Canada

TORONTO, June 9.

The strike situation is still a detriment to business, but a more hopeful tone is apparent as to the ultimate settlement of the difficulties. The machine tool market is active and many manufacturers find deliveries are becoming more certain and in some lines hard to get under several months. The Canadian National Railways and automobile companies continue to head the list of large buyers.

T. H. Rieder, formerly president of the Canadian Consolidated Rubber Co., and who recently became identified with the Ames-Holden-McCready Co., Montreal, has purchased the W. H. Bowby property, consisting of five acres at Kitchener, Ont. A plant for the manufacture of rubber shoes will be erected.

The Stickney Motors has been granted a fixed assessment of \$10,000 for 10 years by the ratepayers of Peterboro, Ont., and will establish a plant for the manufacture of tractors and gasoline engines.

The Holden-Morgan Thread Mills Co., Ltd., Toronto, has sold its site of three and three-quarter acres on the Grand Trunk Railway at Coxwell Avenue, to an American firm which will erect a plant for the manufacture of a special line of kitchen range boilers, etc. The price paid for the property is said to be \$100,000.

The city power house, Swift Current, Sask., was totally destroyed by fire May 28 with a loss of \$60,000. It will be rebuilt and new equipment purchased.

The lumber mill of the Nicola Pine Lumber Co., Ltd., at Canford Mill, near Merritt, B. C., was totally destroyed by fire May 27, with a loss estimated at \$100,000. It will probably be rebuilt without delay.

The Canadian Ice Machine Co., 82 Chestnut Street, Toronto, has let the general contract for the erection of a plant to the Frid Construction Co., 65 Adelaide Street East, to cost \$10,000.

The Siemon Tractor Corporation, with a capital of \$200,000, has been granted a license in Ontario to manufacture automobiles, tractors, trucks, engines, etc., and has appointed Jacob C. Siemon, 309 Confederation Life Building, Toronto, its representative.

The Ontario Steel Products Co. will erect a plant in Oshawa, Ont., for the manufacture of automobile springs and axles of which the McLaughlin and Chevrolet plants in the town will take almost the entire output. The company will employ 150 men at the start.

The International Safe Co., Fort Erie, Ont., is in the market for a portable electric drill with 7/16-in. chuck, portable electric grinders, power gap shears for 1/2-in. stock power punch press, weight about 5000 lbs.; tool room lathe, 22-in. planer, 4-ft. over all; electric spot welder, tool room forge, 10-hp. motor, three-phase, 220 volts, 25 cycle.

The Spardon Electric Products Co., Ottawa, Ont., has been incorporated with a capital stock of \$50,000 by Richard J. Sims, Albert E. Honeywell, John C. Grant and others to manufacture electric and mechanical signals, machinery, tools, etc.

The Mount Royal Rubber Co., Ltd., Montreal, has been incorporated with a capital stock of \$500,000 by Douglas L. McGibbon, Talmon H. Rieder, Charles H. Ancrum and others to manufacture rubber tires, rubber goods, etc.

The Ontario Abrasive Wheels, Ltd., Prescott, Ont., has been incorporated with a capital stock of \$30,000 by Arba E. Kerr, Edwards, N. Y.; Stephen J. Cowan and Lawrence F. Cuthbert, Ogdensburg, N. Y., and others to manufacture abrasive wheels and materials.

The Beaver Truck Builders, Ltd., Toronto, has been incorporated with a capital stock of \$250,000 by Richmond W. Hart, 1126 Traders Bank Building; Charles H. C. Leggett, 116 Arundel Avenue; Edna Fitzsimons and others to manufacture automobiles, trucks, engines, machinery, etc.

The Canada Oil Gas Heaters, Ltd., Toronto, has been incorporated with a capital stock of \$500,000 by Murray H. Gillam, 772 Indian Road; Morley P. van der Voort and others to manufacture gas stoves, burners, oil heaters, oil gas generating machines, etc.

Government Purchases

WASHINGTON, June 9.

Bids will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, for machine tools for the naval service, as follows: Schedule 4054, for 4 single-spindle reversible, vertical shapers, 5 1/2-in. between shoulder and nut, for Brooklyn, opening June 17; schedule 4116, for plate bending roll, 1 compression lever riveter, 1 hand-power splitting shear and 1 hand-power punch for Washington, opening June 27; schedule 4118, for 1 joint press, 1 flanging machine and 1 double seaming machine for Washington, opening June 27; schedule 4119, for 1 reversing planer equipment for Washington, opening June 20.

The Bureau of Yards and Docks, Navy Department, Washington, will receive in the near future competitive bids under specification 3895 for furnishing and installing on runways one 10-ton overhead electric traveling crane, two 10-ton transfer bridges, etc., Hampton Roads, Va., at an estimated cost of \$25,000; and specification 3903 for furnishing and installing one 80-ton, four 15-ton and two 5-ton bridge cranes, fourteen 5-ton and six 3-ton wall cranes in the new structural shop at the navy yard, Mare Island, Cal., at an estimated cost of \$250,000, specification 3933, for electric traveling cranes for shipbuilding ways at the New York Navy Yard at an estimated cost of \$200,000, until June 25.

The General Purchasing Officer of the Panama Canal, Washington, will receive sealed proposals until June 26 under circular 1284 for scrap-cutting machine.



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